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# THE LAKES-TO-THE-GULF DEEP WATERWAY

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# THE LAKES-TO-THE-GULF DEEP WATERWAY

## A STUDY OF THE
## PROPOSED CHANNEL, TERMINALS, WATER CRAFT
## FREIGHT MOVEMENT, AND RAIL
## AND BOAT RATES

*By*

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TO
MY FATHER AND MOTHER

# PREFACE

This volume was prepared as a Master's thesis at the University of Chicago. It is a study of the traffic problem only. Although several related subjects, such as water-power development, land reclamation, and flood control, have bid for entrance, it has seemed best to "stick to the last." Those interested in the freight movement and rates will find these subjects treated in the latter part of the volume. In the appendix will be found a complete comparison of boat and rail rates between the more important points on that part of the route between St. Louis and New Orleans as published in the six tariffs of the Mississippi Valley Transportation Company and by the Illinois Central Railroad Company.

For aid in the collection and preparation of the material, acknowledgments are due to Professor J. Laurence Laughlin of the Department of Political Economy of the University of Chicago. For suggestions in the revision of the manuscript the author is indebted to Mr. James A. Field, editor of the *Journal of Political Economy*. So much aid has been received from traffic managers of large shippers, from officials of boat lines and railways, and from others, that it would make too long a list even to enumerate those to whom the writer is indebted.

WILLIAM A. SHELTON

CHICAGO, ILLINOIS
July 30, 1912

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## INTRODUCTION

During the past six years much attention has been given to the problem of waterway development in the United States. Proposals for a general improvement of waterways have been agitated, but the chief interest has centered around the Lakes-to-the-Gulf project. Within this period the Lakes-to-the-Gulf Deep Waterway Association has held its six annual conventions; two national commissions have spent almost the entire period in investigating rail and water transportation at home and abroad; and a number of special boards of engineers have made reports on various waterway projects.

Among the many documents put forth by commissions, associations, and engineers, none presents an adequate study of the traffic conditions on the proposed route. This small volume has been prepared as a contribution to the study of the traffic side of the problem only. The viewpoint is that of the economist and the traffic man. No discussion of the lowering of the lake levels, of power development, or of other strictly engineering problems is offered. Several boards of engineers, state[1] and national,[2] have reported plans and estimated costs for obtaining different depths of channel on the several sections of the route; and have estimated the amount of power that may be developed, and the effect that the flow of the current from Lake Michigan would have on the lake levels. However, a brief statement is here made of some of the physical characteristics of the route that bear directly on the economic problems at issue.

It is believed by some that it is practicable to develop traffic in ocean and lake vessels on the proposed Lakes-to-the-Gulf Deep Waterway; that the channel should be improved to a depth of from 20 to 30 feet, in order that ocean and lake vessels may be employed; that were this done, the cost of shipping would be so reduced that a phenomenal development would occur along the route, and that there would be a large saving in freight charges. But the effect that an improved waterway would have on railway rates is more commonly believed to be the justification for the expenditure of funds for the project. It is assumed that railway rates parallel to the route are much higher than boat rates would be on an adequate channel, that on an improved waterway competition among the boat companies would lower the boat rates, and that the boat rates would force a reduction in railway rates.

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[1] *The Illinois Waterway Report*, 1909, Internal Improvement Commission of Illinois.

[2] H. Doc. 263, 59th Cong., 1st sess. (Lockport to St. Louis); H. Doc. 50, 61st Cong., 1st sess. (St. Louis to the Gulf); H. Doc. 1374, 61st Cong., 3d sess. (Lockport to the mouth of the Illinois River).

A knowledge of traffic conditions in the Valley is necessary to aid the reader in forming an opinion as to the effect that an improved waterway would have on industrial development, on traffic, and on rates. In this volume an attempt has been made to show the conditions under which the freight moves, and may be expected to move. An outline of the route, the water craft now employed on it, and the nature of the boat business are presented for the purpose of showing the conditions of freight movement. The amount of freight carried by rail and by river, the boat rates, the insurance and terminal charges, and the rail rates are tabulated, in order that a sane conclusion may be arrived at as to the social wisdom of constructing the waterway.

# PART I

## THE CHANNEL, TERMINALS, AND WATER CRAFT

# CHAPTER I

## THE CHANNEL

The proposed waterway is made up of five different channels, namely: the Chicago River, the Chicago Sanitary and Ship Canal, the Des Plaines River, the Illinois River, and the Mississippi. The map shows the proposed route between Chicago and St. Louis; the channel of the Mississippi River between St. Louis and the Gulf composes the remainder of the route. Beginning at Lake Michigan and the mouth of the Chicago River, in the very heart of the city of Chicago, the route follows the Chicago River for 6.25 miles from Lake Michigan to Robey Street, the Chicago Sanitary and Ship Canal for 32.35 miles to the junction with the Des Plaines River and the Illinois and Michigan Canal at Joliet,[1] the Des Plaines River for 15.73 miles to the junction of the Kankakee,[2] the Illinois River for 273 miles to the Mississippi, and the Mississippi for 1,332 miles[3] to the Gulf of Mexico.[4] The total distance between Chicago and the Gulf is 1,659.33 miles.

It is perhaps worth while to study more in detail the several sections of the route.

### 1. *The Chicago River*

The part of the Chicago River that is to be used for the waterway is divided into two sections, the Main River and the South Branch. The Main River extends from Lake Michigan for a distance of 1.58 miles. It is under the control of the national government. The depth is 21 feet[1] and the width from 220 to 300 feet.[2] The South Branch connects the Main River with the Sanitary and Ship Canal, and is under the control of the Sanitary District.[3] It has a mid-channel depth of from 20 to 26 feet, a dock-line depth of 16 feet,[4] and a width of from 100 to 200 feet.

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[1] *Bull. No. 20*, War Department, 1911, pp. 150–63.

[2] H. Doc. 263, 59th Cong., 1st sess., p. 72.

[3] Channel distance, not mid-bank.

[4] H. Doc. 50, 61st Cong., 1st sess., pp. 33 and 329.

Many obstacles hinder the development of shipping on the Chicago River. The river current, used to carry the sewage, is the most serious; while the city traffic across the channel and the cost of real estate along the banks needed for increasing the width are worthy of mention. Important industrial plants are located on sections of the unimproved part of the river from Sixteenth Street north, and twenty-seven city and railroad bridges span the 6.25 miles of the channel between the lake and the Drainage Canal. Ten of the bridges have center piers. The first from the lake in the Main River has a center pier, and the widest draw is only 73 feet in width. Other bridges farther up the river (or down the river, as the stream flows since it was reversed by the construction of the Drainage Canal) have still narrower draws. These, in conjunction with the curves of the channel and the velocity of the current, prevent the employment of the large lake freighters.[5]

### 2. *The Chicago Sanitary and Ship Canal*

The Sanitary and Ship Canal is thought by many persons, even in Chicago, to be a completed channel open for deep-draft vessels; while in fact only three of the bridges have been equipped with operating machinery,[6] and for 7.8 miles the channel has been dredged to but little more than half the projected width.[1] Following are the dimensions of the canal: From the river at Robey Street to Summit, 7.8 miles, the width is 110 feet at bottom and 198 feet at water line. From Summit to Willow Springs, a distance of 5.3 miles, the width is 202 feet at bottom and 290 feet at water line. From Willow Springs to the power plant at Joliet, a distance of 16.95 miles, the width is 160 feet at bottom and 162 feet at water line. The lock at Joliet is 130 feet in length, 22 feet in width, 12 feet in depth, and has a "lift" of 37 feet.[2] For the remaining two miles, the canal has a minimum width of 160 feet at bottom and 162 feet at water line, and a depth of 10 feet.

---

[1] Depths are referred to *Chicago city datum*—the low-water mark of Lake Michigan in 1847, 1.7 feet lower than mean lake level.

[2] *Survey of Northern and Northwestern Lakes*, Bull. No. 20, War Department, 1911, pp. 150–63.

[3] The Sanitary District of Chicago is a semi-municipal organization chartered by the state of Illinois. *The Sanitary District of Chicago, and the Chicago Drainage Canal, A Review of 20 Years of Engineering Work*, by Isham Randolph, 1909, gives historical and descriptive matter concerning the district.

[4] The docks must be rebuilt before the depth can be extended to the dock lines, and it is the policy of the Sanitary District to leave to the owners of the docks the improvement of their own property.

[5] § 12, pp. 27–30 of this volume.

[6] *Bull. No. 20*, War Department, 1911, p. 162.

Between Chicago and Lockport the Sanitary and Ship Canal has a uniform depth of 22 feet. Fifteen bridges span the channel. Eight of these have center piers, six have only one draw dredged, and twelve are not equipped with operating machinery. The Sanitary District is not called upon to dredge the unimproved part of the channel until the population of the city requires it to be done; but it is bound by the act creating the district to equip the bridges and operate them. This has not yet been complied with.[3]

The Chicago River and the Chicago Sanitary and Ship Canal are now used as the main sewer of Chicago. The current flowing through these channels is drawn from Lake Michigan and discharged into the Des Plaines River at Joliet, Ill., 38 miles from Lake Michigan. The sewage borne by the current finds its way through the Des Plaines and the Illinois rivers into the Mississippi. The volume of water flowing in the channel of the river and the canal is regulated at Lockport. Under date of December 5, 1901, the Secretary of War granted permission to the Sanitary District so to regulate the discharge of water from the canal that the maximum flow should not exceed 4,167 cubic feet per second,[1] but the Sanitary District is now using about 7,000 second-feet.[2] There are two reasons for limiting the volume: a large flow (1) would obstruct navigation in the Chicago River by increasing the velocity of the current, and (2) would lower the lake levels. The International Waterways Commission has estimated that the diversion of 20,000 cubic feet per second would lower the "Lake Michigan-Huron" level about 13 inches and that of Lake Erie about 11 inches. The cost of restoring the previous depth of the harbors and channels of the Great Lakes, in the event of such a change in the lake level, is estimated at $12,500,000. Serious obstruction to the lake traffic would also result while the remedial work was being done.[3]

---

[1] *Ibid.*, p. 161. This is the earth section and has been dredged on one side only. Mr. Lyman E. Cooley, C.E., made a statement before the Committee on Commerce of the Senate of the United States, February 28, 1910, in which he said that the width of the Drainage Canal was "202 feet on bottom in earth." See p. 22 of said statement. It is common opinion that the entire channel is 200 feet in width.

[2] Isham Randolph, Consulting Engineer, *The Sanitary District of Chicago and the Chicago Drainage Canal*, 1909; *Bull. No. 20*, War Department, 1911, pp. 161–62.

[3] *Report on the Chicago Drainage Canal*, p. 2, International Waterways Commission, 1907; *Bull. No. 20*, War Department, 1911, p. 162.

The velocity of the current in the Chicago River and the Drainage Canal is estimated at from 1.5 to 3 miles per hour. The narrow stretches of the canal force the greater velocity. In some of the bridge draws the velocity exceeds three miles an hour, and a material increase in the flow would probably result in the destruction of the shipping in important lake vessels, unless the width of the channel should be increased.

### 3. *The Stretch from Joliet to St. Louis*

From Joliet to La Salle via the Des Plaines and Illinois rivers, a distance of 74 miles, there is a fall of 136 feet. To overcome the declivity it is proposed that this section be made navigable by means of locks. In narrow stretches canals are recommended to avoid high velocity of flood currents. This section of the route is not now navigable by river, but the Illinois and Michigan Canal connects the Chicago Sanitary and Ship Canal with the navigable portion of the Illinois River at La Salle, and affords a channel depth of 4 feet and 8 inches.[4]

---

[1] *Bull. No. 19*, War Department, 1910, p. 140.

[2] H. Doc. 1374, 61st Cong., 3d sess., 1911, p. 9.

[3] *Report upon the Chicago Drainage Canal*, International Waterways Commission, War Department, Doc. No. 293, 1907, p. 15.

[4] The connection at Joliet between the Drainage Canal and the Illinois and Michigan Canal was made in July, 1910, and the depth given is that to be maintained during 1911.—*Bull. No. 20*, War Department, 1911, p. 163.

The Illinois and Michigan Canal (at present the only navigable channel between Joliet and La Salle) has an average width of 60 feet at water line and 48 feet at bottom. There are 18 lift locks on the channel having a minimum length of 110 feet and a minimum width of 17½ feet at water line and 14 feet at the bottom of the locks. The minimum depth of the locks is 5½ feet and the overhead clearance is 11½ feet.[1]

The Illinois River has a low-water depth of 6 feet from La Salle to Peoria, and 7 feet from Peoria to Grafton, where it joins the Mississippi.[2] The four locks on this section are 350 feet in length, 75 feet in width, and 7 feet in depth. The first two locks below La Salle (at Henry and at Copperas Creek) are operated by the state, and tolls are collected; the other two (at La Grange and at Kampsville) are operated by the national government without charge. In the 220 miles between La Salle and Grafton the fall is only 33 feet. To obtain a channel 14 feet in depth the engineers recommend the removal of the locks and the dredging of a channel having a bottom width of 200 feet. The cost of the project from Lockport to Grafton is estimated at $23,543,582.[3]

From Grafton, Ill., to Eads Bridge, St. Louis, the distance is 39 miles. The following excerpts from the report of the Mississippi River Commission, 1905, describe some of the characteristics of the section. The Commission says:

> About 23 miles below Grafton the Missouri River enters the Mississippi, completely changing the character of the latter stream below the junction and disturbing its regimen for many miles above.
>
> Immediately at the junction the changes of volume and of slope, due to the coincidence or non-coincidence of floods or of low water, are so frequent and so radical that it may almost be said that the river here has no regimen. . . . . The experience of the last 25 years in the efforts to gain a channel depth at low water on the Mississippi, below the Missouri, of 8 or 10 feet, does not encourage the belief that a depth of 14 feet can be secured and maintained without excessive expenditure of time and money.[4]

The commission recommends the construction of a dam at Alton and a canal extending from there to a point 18 miles below on the

---

[1] From a letter sent to the writer by the Canal Commissioners of Illinois, May 8, 1911.

[2] *Bull. No. 20*, War Department, 1911, p. 163.

[3] H. Doc. 263, 59th Cong., 1st sess., p. 19.

[4] *Ibid.*, pp. 530–33.

Mississippi. The canal is to have a bottom width of 160 feet and the locks are to be 600 feet in length, 80 feet in width, and 14 feet in depth. The cost of the project is estimated at $6,553,880.[1] This section, from Grafton to St. Louis, now has a mean low-water depth in the river channel of 6 feet and a width of 2,500 to 3,500 feet. The fall is 24.14 feet.

### 4. *From St. Louis to the Gulf*

The low-water channel length of the river from St. Louis to the mouth of the Ohio is 182 miles; the air-line distance, 125 miles. From Cairo to the mouth of the Red River the channel distance is 790 miles; the air-line distance, 440 miles. From the mouth of the Red River to the Gulf the channel distance is 321 miles; the air-line distance, 210 miles.

The width between St. Louis and Cairo varies from 650 feet to 4,000 feet at zero stage, and from 800 feet to 4,900 feet at four-foot stage. The bank-full stage varies from 1,550 feet to 6,800 feet in width. Below Cairo various widths as small as 1,000 feet and as great as 7,500 feet at zero stage have been found. At bank-full stages the widths vary from less than 2,000 feet to 10,500 feet. The river becomes more uniform in the lower section, and averages somewhat less in width. Through a large part of the distance from Cairo to the mouth of the river, floods are confined between a levee on one side and highlands on the other; and through another large part, within levees along and near both sides. This restricted flood width averages from 5 to 10 miles, but decreases to about two miles in the lower section.[2]

The fall at low water from St. Louis to Cairo is 7.39 inches per mile, while from Red River to the head of the passes it is less than ¼ of an inch per mile. Table I shows the slope and the depths from St. Louis to the Gulf.

As the declivity decreases, the depth increases. The decreased width on an almost level river-bed increases the depth; but if the slope were steep it would increase the velocity. The engineers have made it clear that a decreased width between St. Louis and Cairo would increase the velocity and the scouring capacity of the current.[1]

---

[1] H. Doc. 263, 59th Cong., 1st sess., p. 544.

[2] H. Doc. 50, 61st Cong., 1st sess., pp. 33–34.

TABLE I

THE SLOPE AND THE DEPTHS OF THE MISSISSIPPI RIVER FROM ST. LOUIS TO THE GULF OF MEXICO[2]

| Stations | Distances (Mid-Bank) | Fall at Low Water | Average Depth at Low Water | Least Depth at Low Water |
|---|---|---|---|---|
| | Miles | Feet | Feet | Feet |
| St. Louis to Cairo.......... | 175 | 107.86 | 18 | 8 |
| Cairo to Memphis.......... | 230 | 89.52 | 31½ | 9 |
| Memphis to Vicksburg..... | 369 | 141.86 | 37 | 9 |
| Vicksburg to Red River.... | 154 | 36.69 | 48½ | 9 |
| Red River to passes........ | 291 | 6.08 | 84 | 30 |

The Board of Engineers states that the Mississippi River from St. Louis to the Gulf is typically a river with an unstable bed, that is, one of caving banks and shifting bottom. The report says: "No river in the world, under improvement for purposes of navigation, equals it in the magnitude of its bed disturbances." It is stated that the amount of material carried "is over 20 times as much as is carried annually by the Danube, Dnieper, Volga, Rhone, Nile, or La Plata, and over fifty times as much as by the Loire and Durance, although these foreign rivers are considered specially difficult of improvement because of their silt and other water-borne material." The board states, however, that the experience of the government engineers during many past years has shown that protection of banks, by mattress below low water and by paving above, can be secured anywhere along the Missouri and the Mississippi rivers.[3]

The Mississippi River Commission has, for its present project, to maintain a channel of 8 feet from St. Louis to Cairo and of 9 feet from Cairo to the mouth of the Red River. This has been accomplished except for very short periods at a few bars.[1] The following excerpts from the report of the Special Board of Government Engineers, made in 1909, state the present condition of the channel in regard to navigation. The engineers say:

---

[1] The greater weight of water on the bottom of a deep channel gives increased carrying and scouring capacities. This is the secret of the capacity of the Mississippi to carry its load of silt into the Gulf through an all but level channel.

[2] H. Doc. 50, 61st Cong., 1st sess., p. 34; *Annual Report of the Chief of Engineers*, 1909, pp. 550–52.

[3] *Ibid.*, pp. 40–48.

> . . . . it has been possible for several years, even during low-water seasons, to freely send boats of 25 to 30 feet draft from the Gulf 270 miles to New Orleans, Baton Rouge, and Bayou Sara, 9 feet draft thence 840 miles to Cairo, 8 feet draft thence 182 miles to St. Louis, thence 4½ feet draft 365 miles up the Mississippi and Illinois rivers and through the Illinois State Canal to Chicago.
>
> On the Mississippi River from St. Louis to Cairo the increase in depth and width of channel during past years, while under improvement by the Engineer Corps, has been quite marked, and today there are only a few days at a time for a few times each year when a boat drawing 8 feet cannot freely go up and down the river anywhere between St. Louis and Cairo.
>
> The delays of navigation on this stretch of river . . . . are trifles in comparison to the winter delays of navigation on the Great Lakes, where the boat commerce is many times greater and where all reasonable demands of commerce are today fully met and satisfied.
>
> On the Mississippi River below Cairo the river is also in far better condition now than ever before, and except for a few days a few times each year there has been maintained for several years a least depth of 9 feet, capable of carrying all boats that may reach it from the Ohio River after the improvements in progress thereon shall have been completed.
>
> This waterway . . . . is, as a whole, the equal of anything in Europe, where much of the canal and up-river boat traffic is done on 3 feet draft; most of it is done on 6 to 8 feet draft, and where as much as 10 feet draft is exceptional.[2]

The same board reported that the open-river plan of improvement between St. Louis and the Gulf was more practical than that of any system of canals or combination of open channel and canals. This plan includes dredging and bank protection with the addition at certain localities of works to contract the channel. The cost of securing a 14-foot channel by this method is estimated at $128,600,000 for construction and $6,500,000 annually for maintenance after the completion of the project. If to this be added the $30,097,462 for first cost and $310,000 for annual maintenance of the section from Lockport to St. Louis, the total estimated cost for a channel 14 feet in depth from Lockport to the Gulf is $158,697,462 for construction and $6,810,000 annually for maintenance.[1] The cost of completing the Sanitary Canal and of widening the Chicago River would probably be not less than $100,000,000; and the cost for maintenance, including the dredging for the waste from the sewage, would probably be not less than three or four millions of dollars. The total cost for the construction would be approximately a quarter of a billion of dollars and for maintenance roughly $10,000,000.

---

[1] *Annual Report of the Chief of Engineers, U.S. Army,* 1909, pp. 550–52.

[2] H. Doc. 50, 61st Cong., 1st sess., pp. 329–30.

# CHAPTER II

## TERMINALS

### 5. *Terminals and Terminal Equipment*[2]

Concerning the ports and landings on the route of the proposed waterways, it is the purpose (1) to present briefly the present conditions of the more important landings and ports, and (2) to discuss the advisability of improving them.

In considering the advisability of equipping the ports and landings, the problem of most importance is that of the relation of cost to returns. The combined interest and maintenance charge for port equipment may not be large per ton of freight cared for at ports that accommodate great volumes of traffic. But the corresponding charge may be much larger at ports through which pass insignificant amounts of freight. There are difficulties, moreover, at Mississippi landings not encountered at most important ports where excellent facilities for handling freight are found. Attention is directed to a few only of the more salient features of the problem.

The Chicago River has long been the harbor of Chicago. The physical conditions of the river, the difficulties of navigation, and the advisability of constructing a harbor on the lake front have already been discussed. The docks on the Chicago River are owned by private parties, and the larger number of them have a depth of only 16 feet. Those on the Main River, however, have a depth of 21 feet; and a very large part of the freight is now handled at these docks.

---

[1] *Ibid.*, pp. 12–21.

[2] This part of the study is confined to a few conditions at the terminals. Cf. *Transportation by Water in the United States*, Part III, 1910, Bureau of Statistics.

Probably all boats that will be able to navigate the channel between Chicago and St. Louis can discharge their cargo at the present docks, even at those on the South Branch of the river. Moreover, the center of the channel on the South Branch of the river is now from 20 to 26 feet in depth, and the owners of the docks may improve them at no great cost. The authorities of the city are also planning to construct a modern wharf on the lake front near the mouth of the river. It is to be equipped with machinery for handling freight at the smallest cost practicable. In view of these conditions and improvements it would seem that river shipping will lack nothing in harbor equipment at Chicago.

Chicago and New Orleans have two important advantages over the other towns and cities on the route. (1) There is little oscillation in lake and river stages at their wharves, and (2) the cost of constructing and maintaining an adequate wharf may be met by lake and ocean commerce. In this respect, the contrast between these two cities and the other towns and cities on the route is shown in the following paragraphs.

At St. Louis there is an oscillation of 43 feet in the stage of the river. This oscillation would make it expensive to construct a vertical wharf. A floating wharf constructed by the city and made free for all boats would aid the boat business. But how much this would increase the boat traffic is problematical. The sloping wharf or landing now maintained furnishes not only ample space but more than is used. There was a time when boats could scarcely find space to land at St. Louis, but it has passed. The limited amount of freight now seeking the landing would not justify an elaborate expense for a terminal.

At Cairo there is an oscillation of 50 feet in the river stage. Here the same difficulty is met as at St. Louis. It is not practicable to construct a vertical wharf. The wharf at this point is controlled by a double monopoly, a private company improved the wharf and now leases it to floating wharfboat companies. There is complaint that the wharfage is excessive, and it seems that the city should control the wharf. There is ample space, however, on the present improved wharf for more wharfboats than will ever be needed.

At Memphis there is no great stretch of public wharf, but not one-fifth of the present wharf is used. The Lee Line, the most important line on the Mississippi River, has a small warehouse at this point. The freight is carried up or down the river bank to or from the warehouse, the capacity of which is some two carloads. The oscillation in the river stage is about 45 feet.

At Greenville freight is carried from 100 to 300 yards across the levee. The distance depends on the stage of the river. There was at one time a coal tipple in operation here. Coal was shipped from mines near Greenville via the Southern Railway to the tipple and reshipped by boat to the lower river. This has entirely ceased now, however. Coal is brought to Greenville from Pittsburgh in barges and carried across the levee in wheelbarrows. The gangway across the levee from the landing to the coal yard is from 200 to 400 yards in length. Some 10 Negroes are occupied for from 12 to 14 days in unloading a barge of 500 or 600 tons of coal, and it is said that the cost of unloading alone is more than $1.00 a ton. The Monongahela Coal & Coke Company of Pittsburgh, one of the largest companies in the country, is the distributor of coal on the lower river; and if it were practicable to equip the landings, the corporation would probably have them equipped for handling coal.

At Vicksburg, of the one mile of wharf the city owns about 2,500 feet. The oscillation is about 40 feet, and no fixed wharf has been attempted. The Commissioner of Corporations calls attention to the "high and steep" land adjacent to the landing used by the packet boats. He does not state why the boats are landed on the steep bank in preference to the level space farther down the river. The explanation is as follows: Even a packet of a draft of 4 or 5 feet cannot moor near enough to a bank of gentle slope to swing the gangplank ashore. If the boats landed at the gentle slope farther down the river the variation in the landing spot, at high and at low water, would probably be 300 yards. This is the problem of wharf improvement on the lower Mississippi. Vertical wharves that would meet all stages of the river would cost dear, and at the same time be of little use at low stages of the river, because of the very height of the wharf above the deck of the boat. At Vicksburg the difficulty is met, if not solved, by the use of the steep part of the landing; while at most of the larger landings, the floating wharfboat is used.

The ocean commerce of New Orleans is now far more important than the river shipping; but even the latter is still worthy of consideration. Inasmuch as the oscillation in the stage of the river is only 19 feet, the construction of vertical wharves is not very expensive. There is no terminal obstruction to the river business at New Orleans. A large part of the wharf is under public control, and encouragement is given to river shipping. The freight movement is discussed elsewhere.

It is commonly believed that the most necessary aid to commerce on the Mississippi is better terminals. European ports teeming with river commerce are cited as examples of wharf improvement which the cities on the Mississippi should follow. But the oscillation in the river stage is from 40 to 50 feet between St. Louis and Baton Rouge. How could wharves and warehouses that would serve all stages of the river be constructed at a cost not more than commensurate with the benefits received? It would certainly be uneconomical to equip all of the way landings with adequate wharves; and yet the larger part of the present packet shipping is either received or discharged at small landings. Moreover, the problem is not that of river frontage for boat landings. There is more wharf space than would be needed for many times the present commerce. At Chicago the private docks on the Chicago River are scarcely used at all, and at the smaller landings, of course, there will never be any congestion of boats.

# CHAPTER III

## WATER CRAFT AND BOAT LINES

### 6. *Construction and Tonnage of Water Craft*

The history of the construction of water craft on the Mississippi River System is closely allied with the history of the river business. Table II shows the number and gross tonnage[1] of all documented steam vessels built on the Mississippi River and its tributaries for quinquennial periods from 1811 to 1910.

TABLE II

NUMBER AND GROSS TONNAGE OF DOCUMENTED STEAM VESSELS BUILT ON THE MISSISSIPPI RIVER AND ITS TRIBUTARIES FOR QUINQUENNIAL PERIODS, 1811–1910*

| Period | Number of Vessels | Gross Tonnage | Average Tonnage per Vessel | Average Number of Vessels per Year | Average Gross Tonnage per Year |
|---|---|---|---|---|---|
| 1811 to 1815 | 9 | 1,589 | 177 | 1.8 | 347.8 |
| 1816 to 1820 | 62 | 12,620 | 204 | 12.4 | 2,523.0 |
| 1821 to 1825 | 69 | 10,075 | 146 | 13.8 | 2,015.0 |
| 1826 to 1830 | 156 | 27,225 | 175 | 31.2 | 5,445.0 |
| 1831 to 1835 | 270 | 35,720 | 132 | 54.0 | 7,144.0 |
| 1836 to 1840 | 459 | 72,284 | 157 | 91.8 | 14,456.8 |
| 1841 to 1845 | 495 | 87,552 | 177 | 99.0 | 17,510.4 |
| 1846 to 1850 | 638 | 124,534 | 195 | 127.6 | 24,906.8 |
| 1851 to 1855 | 671 | 160,157 | 239 | 134.2 | 32,031.4 |
| 1856 to 1860 | 675 | 147,465 | 218 | 135.0 | 29,493.0 |
| 1861 to 1865 | 706 | 153,573 | 218 | 141.2 | 30,714.6 |
| 1866 to 1870 | 504 | 142,578 | 283 | 100.8 | 28,515.6 |
| 1871 to 1875 | 588 | 128,054 | 218 | 117.6 | 25,610.8 |
| 1876 to 1880 | 596 | 124,275 | 209 | 119.2 | 24,855.0 |
| 1881 to 1885 | 551 | 97,577 | 177 | 110.2 | 19,515.4 |
| 1886 to 1890 | 369 | 54,683 | 148 | 73.8 | 10,936.6 |
| 1891 to 1895 | 392 | 51,864 | 132 | 78.4 | 10,372.8 |
| 1896 to 1900 | 480 | 59,184 | 123 | 96.0 | 11,836.8 |
| 1901 to 1905 | 728 | 42,592 | 59 | 145.6 | 8,518.4 |
| 1906 to 1910 | 916 | 29,418 | 32 | 183.2 | 5,883.2 |

* *Transportation by Water*, 1906, p. 165, Special Reports, Bureau of the Census, Department of Commerce and Labor; *Annual Report*, *Commissioner of Navigation*, 1910, p. 222.

The table shows that from 1811 to 1865 there was a continuous increase in the number of steamers constructed; while from 1866 to 1890 there was a decrease. From 1891 to 1910 there was again an increase in the number, but a decrease in the total tonnage and in the tonnage per vessel. That is, a larger number of small vessels was built. In gross tonnage the maximum was attained in the period from 1851 to 1855, the figure had fallen to less than one-fifth as much in the period from 1906 to 1910. In tonnage per vessel the maximum was reached in the period from 1866 to 1870, when the average was more than eight times as great as in the period from 1906 to 1910.

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[1] In this chapter the word tonnage is used to designate the registered capacity of vessels and should be distinguished from the amount of freight carried, or cargo.

Table III gives the number and gross tonnage of the steam vessels documented on the "Western Rivers,"[1] classified according to tonnage groups for the years 1889, 1906, and 1910.

TABLE III

NUMBER AND GROSS TONNAGE OF STEAM VESSELS ON THE "WESTERN RIVERS" BY TONNAGE GROUPS, 1889, 1906,* AND 1910†

| Year | Class | | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | | 5 to 49 Tons | | 50 to 99 Tons | | 100 to 499 Tons | | 500 to 999 Tons | | 1,000 to 2,499 Tons | | 2,500 to 4,000 Tons | |
| | No. of Vessels | Gross Tonnage | No. of Vessels | Gross Tonnage | No. of Vessels | Gross Tonnage | No. of Vessels | Gross Tonnage | No. of Vessels | Gross Tonnage | No. of Vessels | Gross Tonnage | No. of Vessels | Gross Tonnage |
| 1889.. | 1,114 | 209,826 | 270 | 7,933 | 261 | 19,345 | 493 | 103,358 | 67 | 49,026 | 23 | 30,164 | ... | ..... |
| 1906.. | 1,451 | 152,592 | 754 | 14,057 | 300 | 22,508 | 339 | 72,289 | 57 | 33,784 | 7 | 9,954 | ... | ..... |
| 1910.. | 1,677 | 140,781 | 1,064 | 16,742 | 282 | 21,120 | 274 | 58,780 | 49 | 31,860 | 7 | 9,754 | 1 | 2,525 |

* *Transportation by Water*, 1906, p. 166, Department of Commerce and Labor.

† *Annual Report, Commissioner of Navigation*, 1910, p. 206.

The total tonnage shows a decrease of almost one-third while the number of vessels increased from 1,114 to 1,677. With the exception of one vessel in the sixth class, the increase in number was in the first and second. In these classes there was a gain of 815 vessels. That is, the increase in number was almost entirely in vessels of which the capacity was less than 50 tons. Classes three, four, and five show a decrease in both number of vessels and tonnage. The development of the gasoline power boat is partly responsible for the increase in the number of the smaller vessels;

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[1] The term "Western Rivers" includes the Mississippi River and tributaries only.

but the falling-off of river traffic made large boats unnecessary and uneconomical, and the situation was met by the construction of smaller steamers.

Table IV shows the documented steam vessels on the Illinois River and on the lower Mississippi for the years 1889, 1895, 1900, and 1910.

TABLE IV

DOCUMENTED STEAM VESSELS ON THE ILLINOIS RIVER AND THE LOWER MISSISSIPPI, 1889, 1895, 1900, AND 1910*

| CUSTOMS DISTRICTS | 1889 | | | 1895 | | | 1900 | | | 1910 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. of Vessels | Gross Tonnage | Average Tonnage | No. of Vessels | Gross Tonnage | Average Tonnage | No. of Vessels | Gross Tonnage | Average Tonnage | No. of Vessels | Gross Tonnage | Average Tonnage |
| Peoria, Ill. | ... | ........ | ... | 9 | 458 | 51 | 11 | 431 | 39 | 16 | 821 | 51 |
| St. Louis, Mo. | 115 | 42,827 | 372 | 109 | 38,703 | 355 | 107 | 30,860 | 288 | 99 | 16,539 | 167 |
| Cairo, Ill. | ... | ........ | ... | 17 | 3,954 | 233 | 20 | 2,928 | 146 | 18 | 1,730 | 96 |
| Memphis, Tenn. | 71 | 12,117 | 171 | 69 | 9,025 | 131 | 90 | 12,180 | 135 | 193 | 10,425 | 54 |
| Vicksburg, Miss. | 30 | 2,876 | 96 | 21 | 2,819 | 134 | 26 | 3,852 | 148 | 48 | 4,801 | 100 |
| Natchez, Miss. | 4 | 592 | 148 | 4 | 580 | 145 | 2 | 349 | 175 | 6 | 1,136 | 189 |
| New Orleans, La. | 126 | 19,246 | 153 | 127 | 17,298 | 136 | 113 | 16,423 | 145 | 203 | 14,343 | 71 |
| Total | 346 | 77,658 | 188 | 356 | 78,837 | 169.2 | 369 | 67,023 | 153.7 | 583 | 49,795 | 104 |

* *Transportation by Water*, 1906, p. 169, Department of Commerce and Labor; *Report of Commissioner of Navigation*, 1910, pp. 183–84.

For the twenty-two years from 1889 to 1910 the number of vessels increased from 346 to 583, while the tonnage decreased from 77,658 to 49,795, and the average tonnage per vessel decreased from 188 to 104. Again there appears a decrease in total tonnage and in average tonnage per vessel, but an increase in number of vessels. It is sometimes said that the lack of a channel of sufficient depth has been a cause of the decrease in the size of vessels. But the engineers have pointed out that the depth has been increased throughout the entire navigable part of the route.[1]

Table V shows the number and tonnage of steam vessels and barges documented on the proposed Lakes-to-the-Gulf Waterway at the offices of the several customs districts for the year 1910.

There were only 8 barges documented on the route, 4 at St. Louis, 2 at Cairo, and 2 at Vicksburg. Barges documented on the

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[1] See above, p. 10.

Ohio, however, ply between Cairo and New Orleans, and Cairo and St. Louis.

### TABLE V

NUMBER AND TONNAGE OF STEAM VESSELS AND BARGES DOCUMENTED ON THE ILLINOIS RIVER AND ON THE LOWER MISSISSIPPI, 1910*

| CUSTOMS DISTRICTS | STEAM VESSELS | | BARGES | | TOTAL | |
|---|---|---|---|---|---|---|
| | Number | Tons | Number | Tons | Number | Tons |
| Peoria, Ill. | 16 | 821 | .. | .... | 16 | 821 |
| St. Louis, Mo. | 99 | 16,539 | 4 | 1,447 | 103 | 17,986 |
| Cairo, Ill. | 18 | 1,730 | 2 | 1,147 | 20 | 2,877 |
| Memphis, Tenn. | 193 | 10,425 | .. | ... | 193 | 10,425 |
| Vicksburg, Miss. | 48 | 4,801 | 2 | 76 | 50 | 4,877 |
| Natchez, Miss. | 6 | 1,136 | .. | ... | 6 | 1,136 |
| New Orleans, La. | 203 | 14,343 | .. | ... | 203 | 14,343 |
| Total | 583 | 49,795 | 8 | 2,670 | 591 | 52,465 |

* *Report of Commissioner of Navigation*, 1910, p. 203.

Table VI shows the number, the tonnage, and the class of vessels more or less regularly plying on the lower Mississippi River, including vessels documented on the Ohio, for 1906. One striking feature of this table is the large number of barges and tows plying on the lower Mississippi, since there are so few barges documented on that section of the river. It is also worthy of notice that the registered tonnage of the vessels plying on the lower Mississippi is only 3 per cent of that of the entire Mississippi system.

### TABLE VI

THE NUMBER, THE TONNAGE, AND THE CLASS OF VESSELS PLYING ON THE LOWER MISSISSIPPI, 1906*

| CLASSES | NUMBER | TONNAGE | PROPORTION OF ENTIRE MISSISSIPPI SYSTEM | |
|---|---|---|---|---|
| | | | Number Percentage | Tonnage Percentage |
| Commercial vessels— | | | | |
| Tugs and towboats | 131 | 10,004 | 21 | 16 |
| Packet boats | 90 | 17,474 | 23 | 32 |
| Barges and tows | 354 | 94,213 | 24 | 2 |
| Ferryboats | 52 | 14,496 | 33 | 65 |
| Yachts | 37 | 858 | 17 | 26 |
| All others | 8 | 437 | 21 | 20 |
| Grand total | 672 | 137,482 | 7 | 3 |

* *Transportation by Water*, 1906, p. 173, Department of Commerce and Labor.

### 7. *Barges and Other Unrigged Craft*

From 1880 to 1900 there was a remarkable extension in the use of barges as bulk carriers for distance traffic, mainly in coal, on the Ohio and the lower Mississippi rivers. In 1906 the unrigged vessels[1] (unequipped with power) formed 95 per cent of the total vessel tonnage on the rivers of the Mississippi system. The tonnage of this class of vessels had increased 34 per cent from 1889 to 1906. During the last few years, however, there appears to be a decrease in the barge tonnage in sympathy with the decline of river business in general, and with the decrease in the shipment of coal and lumber in particular. The amount of coal carried has fallen off notably since 1901, as shown elsewhere.

The Ohio barges are noted as carriers of bulk cargo. The coal fleets that carry Pittsburgh coal to points on the Ohio and Mississippi rivers are the most picturesque of all inland water craft in the United States. The barge fleets of the lower Ohio and Mississippi rivers are frequently more than 300 feet in width and 1,100 feet in length. They are made up of powerful towboats and as many as fifty or sixty "coal boats"[2] and fuel boats. The dimensions of these fleets would prevent their being employed in canals and locks of ordinary dimensions.

What are known as "coal boats" are usually about 175 feet in length, 26 feet in width, and 10 feet in depth, and carry about 1,000 tons of coal. They are cheaply built, of light hemlock, cost about $850 each, and are employed chiefly in the "long river" trade from the shipping points on the Monongahela, Ohio, and Kanawha rivers, to New Orleans and other points on the Mississippi. Many of them are sold in the South for firewood, "shacks," etc., after one or two trips, as the cost of returning and repairing them is about as much as the cost of new boats.[3]

Coal barges, so called, average 135 feet in length, 26 feet in width, and 8½ feet in depth, and carry about 550 short tons of coal. They are substantially built and last about fifteen years. They are used chiefly in the "short river" trade to Cincinnati, Louisville, Cairo, and St. Louis.

Freight barges are of various sizes. The most substantial are the so-called "model barges," built on the model of a steamboat hull decked over, but without machinery. A typical barge, 225 feet long, 36 feet wide, and 10 feet deep, will cost about $10,000, but such barges are built costing from $6,000 to $20,000. They are used mainly to carry steel rails, wire, and other freight downstream, and bring back molasses, sugar, and lumber.[1]

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[1] Unrigged vessels include a great variety of types, such as barges, canal boats, flatboats, lighters, scones, dredges, derricks, and floating elevators.

[2] H. Doc. No. 492, 60th Cong., 1st sess., pp. 18-19.

[3] The practice is not so common as formerly.

The number of barges in a tow varies with the stretch of the river and the size of the towing steamer. In the upper Ohio, starting from Pittsburgh Harbor, a steamer will take a mixed fleet of 25 barges, boats, and flats, containing from 15,000 to 20,000 tons of coal. Such fleets go as far as Louisville where larger tows are made up for the lower Ohio and the Mississippi rivers, running as high as 35,000 to 56,000 tons. The steamboat is attached to the rear of the fleet of barges, but the barges are never floated down the rivers as they were in the old days. The power must be kept up to keep the tow in the channel, and is shut off only occasionally in maneuvering the fleet.

The use of steel barges in the Ohio River coal trade is as yet only experimental. There can be no question as to the desirability of this type of craft, but the initial cost and maintenance in the way of cleaning and painting are serious obstacles, as well as the interest charges, in view of the limited number of trips that can be made under present river conditions. Less than two trips can be made to New Orleans in a year.[2]

The barge fleets that ply on the open Mississippi and Ohio rivers cannot use ordinary canals such as have been projected in connection with the Lakes-to-the-Gulf Waterway between Chicago and St. Louis. Hence the economy that is obtained on the Ohio and lower Mississippi rivers by barge fleets could not be expected on the section of the route between Chicago and St. Louis. Even the wide locks and canals now being constructed on the Ohio will not provide sufficient space for the coal fleets that use the open river.

### 8. *Classes of Vessels and Tendencies*

Table VII shows the class, the number, and the gross tonnage of metal vessels documented on the Illinois and the lower Mississippi rivers for 1910. Only one metal barge was documented, and of the 55 steam metal vessels, 25 were documented at New Orleans and 10 at Memphis.

The "flat-bottom stern-wheeler" still holds its pre-eminence as the prevailing and most useful type of steamboat on the Mississippi.

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[1] It is rare that they are loaded on the return trip. This is the style of barge which was used to carry grain from St. Louis to New Orleans prior to 1904.

[2] *Transportation by Water in the United States*, Part I, pp. 148–49, Department of Commerce and Labor, 1909.

Side-wheelers, where used, are employed mainly for packet service, and especially ferry service; and the center-wheelers almost exclusively for ferry service. Although the screw-propelled vessels constitute 24.8 per cent of the power craft on the river, they represent but 6 per cent of the tonnage. The larger portion of this tonnage is made up of gasoline towboats and yachts. The Mississippi River and its tributaries had, in 1906, almost as many wooden boats as the rest of the United States; but there is a tendency at the present time, by reason of their shorter life, the higher rate of insurance, and greater cost for repairs, toward the substitution of steel and iron boats.[1]

TABLE VII

CLASS, NUMBER, AND GROSS TONNAGE OF METAL VESSELS DOCUMENTED ON THE LOWER MISSISSIPPI, 1910*

| Customs Districts | Steam Vessels | | Barges | | Total | |
|---|---|---|---|---|---|---|
| | Number | Tonnage | Number | Tonnage | Number | Tonnage |
| Peoria, Ill. | .. | ..... | .. | ..... | .. | ..... |
| St. Louis, Mo. | 11 | 2,977 | 1 | 1,162 | 12 | 4,139 |
| Cairo, Ill. | 2 | 80 | .. | ..... | 2 | 80 |
| Memphis, Tenn. | 10 | 1,829 | .. | ..... | 10 | 1,829 |
| Vicksburg, Miss. | 3 | 2,280 | .. | ..... | 3 | 2,280 |
| Natchez, Miss. | 3 | 422 | .. | ..... | 3 | 422 |
| New Orleans, La. | 25 | 5,832 | .. | ..... | 25 | 5,832 |
| Total | 54 | 13,420 | 1 | 1,162 | 55 | 14,582 |

* *Report of Commissioner of Navigation*, 1910, p. 191.

Concerning the gasoline boat, Mr. Story B. Ladd of the Census Bureau says:

> The use of small gasoline boats has developed greatly within the last few years, and they are employed in all kinds of work . . . . in freight and passenger and ferry service and in towing. The number and tonnage of these small excluded [from the Census] vessels and the transportation service performed by them must amount, in the aggregate, to large figures, and if included in these statistics, would add materially to the totals. For example one party does a large amount of business with a fleet of 5 gasoline towboats, each under 5 tons, and hence not included in the canvass. If a bargeload is too heavy

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[1] The Lee Line has recently built, and now has in operation, three packets with steel hulls, the "Rees Lee," the "Ferd Herold," and the "Bob Lee, Jr." It is the purpose of the management of the Lee Line to construct new vessels of steel.

for one boat, two or more are used as the case requires. A large amount of the river business is being captured by the small gasoline boats, since they do not require license or inspection, and since the economical advantages favor them; while the regulations governing steam craft . . . . operate against the use of small steam craft.

When the writer was on the river in 1910 and in 1911, he noted the launching of new gasoline boats at St. Louis and other points. At Vicksburg there is considerable traffic in lumber and other commodities by gasoline towboats of the stern-wheel type. These gasoline tugs tow "flatboats" on which the freight is loaded, and by this means can land at very shallow wharves and carry freight very cheaply. As the steamers that at one time plied between St. Louis and other up-river points and New Orleans were supplanted by the local packet, so the larger packets now plying between such points as St. Louis and Memphis, and Vicksburg and New Orleans, are in danger of being crushed between the gasoline boat on the one hand and the railways and barges on the other. What the changes in equipment will be in the next decade or two may be hazardous to predict. But it appears that barge lines can move bulk freight over long distances more cheaply than any kind of packet steamer, that gasoline boats can handle freight for short hauls in small bulk more cheaply than packet steamers, and that railways can handle most carload freight between competitive points more cheaply than the packet steamers. If these are the conditions it would seem that an increase in the packet steamer equipment could hardly take place.

## 9. *Draft of Vessels on the Lower Mississippi*

No record is kept of the draft of documented vessels on the inland waters of the United States. The writer has been unable to find anything written on the draft of the vessels of the lower Mississippi, except an occasional reference to the draft of certain vessels or classes of vessels. However, by going aboard the packet boats at lower Mississippi points it was learned that the maximum draft of this class of boat is from 22 inches to 8 feet. The latter extreme depth is drawn only by vessels plying between New

Orleans and Vicksburg. The draft of the 10 steamboats of the Lee Line varies from 22 inches to 4½ feet.[1]

In the latter part of April, 1910, the writer inquired of the officials on board a number of vessels at St. Louis concerning the loaded draft of vessels then leaving the city. Not one of them drew more than five feet of water. It was learned that it was rare that freight enough could be obtained to load to a draft of even five feet. Two officials of different companies on the lower Mississippi stated that they were never forced to load light on account of low water, that they did not remember the time when they had been forced to leave a pound of freight on the wharf at St. Louis. They said: "We do not need more water, what we want is more business." Another traffic official of a boat company at Greenville repeated this same thought. One manager said, in an exasperated mood, that there never would be any increase in river traffic unless the present rail rates between river points should be raised, that an increased depth would have no effect on the amount of freight that would be offered. Other officials of boat companies on both the lower and the upper river made the same statements in substance. One traffic manager gave the writer a letter setting forth this view, and stated that there was no hope for the boat business until the long-and-short-haul clause was made to apply to river points as well as non-river points. There seems to be a general consensus of opinion among boatmen that what they need is more business instead of more water. These opinions indicate that the draft of vessels is not limited by the depth of the channel.

One factor in determining the draft of vessels on the Mississippi is the slope of the numerous landings. The small landings have not sufficient slope to allow vessels of deep draft to reach land with the gangplank. Again the small amount of freight handled at each mooring makes it more economical to operate a small boat than a large one. There is no necessity therefore for a vessel of deep draft; while there is an advantage in operating a vessel of shallow draft.

The barges and towboats are usually constructed for deeper draft than the packets. The Barrett Line of Cairo owns towboats and barges of the following drafts:[1]

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[1] This information was obtained from G. P. Lee, vice-president of the Lee Line, while aboard one of the boats in April, 1911.

| DRAFT, IN FEET | NUMBER OF VESSELS | |
|---|---|---|
| | Towboats | Barges |
| 7½ | 1 | 4 |
| 6½ | 0 | 5 |
| 6 | 2 | 10 |
| 4 | 1 | 0 |
| 3 | 0 | 4 |

The common draft on the lower Mississippi for barges and towboats is from 4 to 7½ feet. Very few of these vessels draw as much as 8 feet of water. Barge fleets make but few landings, and do not moor to receive or discharge small amounts of freight. That is, the factors that make for extremely shallow boats, in the case of the packet, do not limit the depth of barges and towboats to so great an extent.

### 10. *Boat Lines*

The number of boat lines on the lower Mississippi River has greatly decreased during the last few decades. Until a few years ago there were boat lines maintaining regular schedules between St. Louis and the Ohio River points and New Orleans. There were also many lines operating for short distances. The through routes had been abandoned, except the barge lines between Ohio River points and New Orleans, until the Mississippi Valley Transportation Company opened a new line between St. Louis and New Orleans in 1911. The local lines, too, have decreased in number.

The most important packet line on the lower Mississippi is the Lee Line, which operates between St. Louis and Memphis, between Ohio River points and Memphis, and between Memphis and Vicksburg. A number of short lines operate on the lower Mississippi, but there is no through line between Memphis and New Orleans, except that of the Mississippi Valley Transportation Company. The Eagle Packet Company operates between St. Louis and Peoria, and the La Salle & Peoria Packet Company, between

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[1] Figures communicated by the Barrett Line.

Peoria and La Salle, Ill.; but there is no line operating between La Salle and Chicago.

The barge lines carry the bulk freight on both the Ohio and the Mississippi rivers. The most important are the coal-carriers between the Ohio River and the lower Mississippi River points, including St. Louis. Certain barge lines, however, carry miscellaneous bulk freight, such as lumber, ties (wooden), manufactured iron, etc. Three lines carry oil in bulk below Baton Rouge.

It is frequently averred that the reason for the falling-off in boat lines is that there has not been sufficient enterprise in the boat business. However, the keenest officials of the boat lines which have abandoned the river state that capital cannot be obtained for a business which will not pay dividends.[1] It is their opinion that there will never be a very large river business again, and they state that personally they would not invest in projected boat companies.

# CHAPTER IV

## INTERCHANGEABILITY OF RIVER, LAKE, AND OCEAN VESSELS

### 11. *Contrast of Opinions*

It is assumed by many that the Lakes-to-the-Gulf Deep Waterway, with a channel depth of 14 feet, as proposed, would be navigable for ocean and lake vessels, and that transhipment would not be necessary at either New Orleans or Chicago. Others think that if a channel of a depth from 20 to 30 feet were constructed, ocean vessels would certainly come to Chicago. Even prominent men of experience in engineering and in transportation have expressed the opinion that ocean vessels may be brought to Chicago, and that this should be done. Such views are heard from the rostrum, through the press, and before Congressional committees.

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[1] A letter from the most important hardware company at Natchez, Miss., contains the following statement:

"Thirty or forty years ago Natchez was a river port of first importance, but this business has gradually dwindled until the present time. There are still two or three boats in the local trade, but even these report unsatisfactory business. With the Illinois Central R.R. flanking the river on one side, and the Missouri Pacific R.R. on the other, the river business, according to investors, has become unprofitable, and for that reason has been, to a large extent, abandoned."

Mr. Lyman E. Cooley, a civil engineer of note, spoke as follows before a Committee of the Senate of the United States:

> You cannot hope to develop this great interior of the Continent (the greater Mississippi Valley), 10 units as great as France or Germany, without giving them a waterway system. You cannot take them to the sea, but you can bring the sea to their doors, give each unit area a virtual sea front, from which can be expanded arms and laterals and the details of a complete and related waterway system.[1]

Even Mr. Theodore P. Shonts, a distinguished civil engineer and railroad president, not long since gave public utterance to the same opinion. In speaking of the benefits to be derived on the completion of the Panama Canal and the Deep Waterway, he said: "Ships will be able to load in Chicago, St. Louis, New Orleans, or intermediate points and deliver the cargo along both coasts of Central and South America without breaking bulk."[2]

With the views expressed above it seems well to compare those of the Commissioner of Corporations of the United States, Mr. Herbert Knox Smith.[3] He says:

> Large ocean-going vessels are not suited for the restricted channels of rivers and canals. Even on the Hudson River practically no ocean steamers are seen at any distance above New York, although there is 25 feet of water as far as Hudson, 100 miles from the mouth of the river. On the Mississippi River even light-draft ocean screw steamers cannot be used to advantage at any considerable distance above New Orleans. Sailing vessels cannot use the narrow, winding channels of rivers. At the same time vessels used on rivers and canals are not strong enough nor usually built with sufficient free-board to equip them to be used on open-water routes, such as the lakes or the ocean. The flat-bottom stern-wheel Mississippi steamer is entirely unsuited to conditions on the sea or on the Great Lakes; and the comparatively small barges used on rivers are distinctly different in type from the large schooner barges used in the deep-sea coast traffic, and neither of these types is well adapted to the routes of the other. Even Great Lakes vessels are not in model or structural strength adapted to ocean conditions, and some experts hold that were there a channel deep enough for them to reach tide-water it would still be usually necessary to transship from lake to ocean vessels. . . . .

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[1] Statements of Mr. Lyman E. Cooley before the Committee on Commerce of the Senate of the United States, February, 1910, p. 38.

[2] Address of Mr. Shonts before the Deep Waterway Association, October 9, 1908, p. 2, Lakes-to-the-Gulf Deep Waterway Association.

[3] Mr. Smith is now completing a series of four volumes on *Transportation by Water in the United States.*

> It cannot be expected that any reasonable expenditure on our inland waterways will wholly remove these difficulties. The expense of securing channels of sufficient depth on rivers and canals for ocean or the larger Great Lakes steamers would, except in a few cases, be prohibitive, if at all possible; while if a sufficient depth were secured other conditions would prevent their use by ocean-going vessels to any appreciable extent. . . . .
>
> Water-borne traffic will continue to be carried, for the most part, in vessels adapted to particular classes of waterways and the special traffic of such waterways. Through traffic moving from one kind of waterway to another will require transshipment. Even on long inland hauls transshipment will often be necessary.[1]

From these excerpts it is evident that Mr. Smith believes it impracticable to use ocean or lake vessels on rivers, or to employ river craft on either the ocean or the Great Lakes.

### 12. *Lake Vessels*

Inasmuch as many think, however, that the lake vessels would be employed on the proposed waterway, it is necessary to set forth some of the facts concerning the vessels and the methods employed in handling them in river channels.

The Special Board of 1909 considered the possibility of lake vessels using the proposed 14-foot channel. The report of that board states that of the freight tonnage which passed through the canals at the Sault Ste. Marie in 1907, 1.3 per cent was borne in vessels of a registered draft of 14 feet or less, 18 per cent, of a draft of from 14 to 19 feet, 24 per cent, of a draft of from 19 to 21 feet, and 56.7 per cent, of a draft of more than 21 feet.[2] That is, 56.7 per cent of the tonnage of the canals at the Sault Ste. Marie could not have entered the Chicago River with its 21 feet of depth, provided the vessels had been loaded to their full capacity; and only 1.3 per cent could have been borne in a 14-foot channel.

It is also stated in the above report that the lake freighters built since 1902 "could barely carry the necessary fuel supply required" for a trip from Chicago to New Orleans on a 14-foot channel; that a lake freighter is poorly constructed for navigating a tortuous river and a swift current; that the rudder power is insufficient to control such great length; and that the lake vessels are less economical than barge tows as a means of transporting freight on rivers and canals.[1]

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[1] *Transportation by Water*, Part I, pp. 151–52, Department of Commerce and Labor.

[2] H. Doc. 50, 61st Cong., 1st sess., p. 23.

Col. C. McD. Townsend, who is in charge of the improvement of the harbors of the Great Lakes, in discussing the Chicago Harbor problem before the Western Society of Engineers, in 1910, said:

> When the majority of the wharves and ships were constructed on the Chicago River, there were few if any vessels on the Great Lakes over 200 feet in length, and 12 feet draft; but the construction of the locks at Sault Ste. Marie and the deepening of the channels connecting the Great Lakes have created a revolution in vessel construction. In 1890 a vessel was built 310 feet in length, by 1895 the length had increased to 380 feet, by 1900 to 474 feet, by 1905 to 569 feet, by 1906 to over 600 feet; . . . . and at the present time there are built and contracted for 19 vessels 600 feet in length, capable of carrying a cargo of 12,000 tons each.
>
> In 1895 the freight passing the "Soo" was all in vessels less than 400 feet in length; in 1903, 40 per cent of the freight was carried in vessels exceeding that length, and in 1908, 74 per cent, . . . . 45 per cent being in vessels over 500 feet long. This has resulted not only from the building of large vessels, but also from the withdrawal of the smaller from trade. . . . . In 1895 the average ore cargo was 1,800 tons, in 1908 over 8,000 tons.
>
> A vessel 200 feet long had comparatively little difficulty in navigating the Chicago River, even in a moderate current; but when three-fourths of the commerce of the lakes is in vessels exceeding 400 feet in length, it is another story. With a discharge of 10,000 cubic feet in the Chicago River, it will be a physical impossibility for a modern lake freighter to proceed from the mouth of the river to the Chicago Drainage Canal, or to enter any of the numerous slips in its vicinity. In my opinion, the widening and deepening of the Chicago River to more than 16 feet above the Forks (1.58 miles from the lake) for purposes of navigation is a waste of public funds. If Chicago River is ever to regain its commercial importance, it will have to be by a system of wharves near the river mouth. . . . .
>
> If we assume that a ship canal through Chicago would develop the freight that existed at the Soo in 1895 . . . . there would be required to carry that freight 16,793 vessels during a season of navigation, or one vessel would pass through Chicago, on an average, every 20 minutes. What would happen to the enormous land traffic across its 26 bridges under such conditions?[2]

Col. Townsend does not mention the draft of the lake vessel, but the vessel more than 400 feet over all commonly draws from

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[1] H. Doc. 50, 61st Cong., 1st sess., p. 24.

[2] *Journal of Western Society of Engineers*, XV (April, 1910), 160–62.

18 to 22 feet, and hence could not navigate a 14-foot channel. He calls attention to the difficulty of handling a vessel even in the present current in the Chicago River, and mentions 200 feet as the length that can be easily handled. It was learned from the harbor master that on account of the curves and the current 400 feet would be the extreme length that could pass the first bridge; while the bulk of the traffic entering the Calumet Port, in South Chicago, is now borne by vessels from 500 to 600 feet in length. The vessels now entering the Chicago River are rarely more than 350 feet in length over all. They do not come in on their own power, but are towed in and out at a speed of from one to two miles an hour. This is true of the larger vessels even in the Main River where the channel is from 200 to 300 feet in width except at the bridges. The not infrequent accidents caused by vessels crashing into bridge piers, as well as the high cost of towage and the expense due to delay, have caused the lake fleets to use the wharves near the mouth of the river.

This difficulty is encountered while there is a flow through the river channel of only 7,000 cubic feet per second. What the difficulties will be when the flow is increased to 10,000, 14,000, or 20,000 cubic feet per second to meet the demands of the increase in the amount of sewage, and when lake vessels from 600 to 800 feet in length are used, is not easy to predict. Though the Calumet River is much straighter than the Chicago River and the velocity of the current is not so great, most vessels are towed in, and almost all are towed out, at a speed of less than two miles an hour. The time it would require, and the expense it would involve, to tow these vessels through a channel of 36 miles, the distance from Chicago to Lockport would prohibit their use.

These difficulties are met even where there is sufficient depth and where the velocity of the current is only from one to two miles an hour (in the Calumet River). Where only 14 feet should obtain as proposed for the Lakes-to-the-Gulf Deep Waterway, and where the velocity of the current should be from two to four times as great as it is in the Chicago and Calumet rivers, it would seem hardly possible to use any of the important lake or ocean vessels. But even if lake vessels could be handled slowly through a river channel, the loss of time in addition to towage charges and river insurance on both cargo and hull would make it unprofitable to employ lake vessels extensively on either canals or rivers.[1]

To summarize: (1) the engineers found that the important traffic of the Chicago Harbor could not be carried through a 14-foot channel; (2) the size of the lake vessels has so increased since 1901 that the large freighters cannot now enter the Chicago River even when steered by a tow; (3) no vessel of importance can pass through the South Branch of the Chicago River without a tow; (4) when the velocity of the current shall be increased, the difficulties of navigation will be heightened; and (5) were it possible to tow the large lake freighters through a channel as long as that of the Chicago River and Drainage Canal, the expense of towage, of hull and cargo insurance, would make it unprofitable.

### 13. *River Craft on the Lakes*

It is sometimes assumed that if lake vessels could not navigate the Lakes-to-the-Gulf Waterway, the river vessels at least could ply on the lakes. The river vessels might pass through the canals and the lakes to Buffalo, it is thought, saving transhipment.

Concerning barge traffic the following dimensions may be compared with those of the Drainage Canal and the Chicago River. The barge fleets that plied between St. Louis and New Orleans from the eighties to 1903 were commonly towed with two and three barges abreast, the tow having a width of 108 feet and a length of 900 feet. The model barges were 36 feet in beam. There is width for only one of these in the Chicago River and Drainage Canal. The "Steamer Sprague" and her tow of coal boats on the Ohio and Mississippi rivers sometimes has a width of 312 feet and a length of 1,132 feet.[2] These dimensions show the limitations of the use of barge lines in canals and narrow rivers. The large cargo of a river fleet of barges cannot be borne through such a channel as the Chicago River.

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[1] The charge for towing a vessel of 200 feet or over from the Lake to the mouth of the Sanitary Canal (six miles) and return is $150.00. River insurance will be considered in section 23 of this volume.

[2] H. Doc. 492, 60th Cong., 1st sess., pp. 18–19.

Concerning the use of river craft on the lakes, it is to be remembered that a rough sea is not only obstructive to such navigation; it is prohibitive. The successive waves of even a light gale would sink a river steamer.

## 14. *Ocean and Gulf Vessels*

Having noted some of the difficulties that lake vessels would meet in attempting to navigate the Chicago River and the Drainage Canal, and having seen the limitations of river craft on open waters, it is necessary to study finally the possibilities of using ocean and Gulf vessels on the proposed water route.

The draft of the ocean and Gulf vessels may be indicated by the following record. For the month of March, 1910, the arrivals and departures of the port of New Orleans numbered 207. The least actual draft was 11 feet, the greatest 28 feet. The number of vessels that drew 11 feet and less than 14 was 72; the number that drew 14 feet and less than 20, was 70; the number that drew 20 feet and less than 24 feet, was 52; the number that drew from 25 to 28 feet was 13.[1] Many of these vessels of lighter draft are unimportant craft that ply only to near-by Gulf ports. Even of tramp steamers on the Atlantic few draw less than 19 feet, and of course the larger tramps and the regular liners draw from 25 to 35 feet. Some of the world's largest steamers draw more than 35 feet.

Many of the vessels that enter the port of New Orleans could navigate the present channel of the Mississippi River for at least 300 miles. There is now and has been since 1901 a channel 30 feet in depth from the head of the passes to Red River Landing, a distance of 320 miles. Also during from five to eight months in the year there is a channel 14 feet in depth from the mouth of the Red River to Cairo.[2] In other words, there is a channel for 245 miles above New Orleans deep enough and wide enough to accommodate all of the ocean vessels that cleared at that port during March, 1910. And yet none of these vessels go up the river. There is also depth enough to allow 72 of the 207 ocean vessels to visit Memphis or Cairo for five months in the year.

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[1] From a list prepared and sent to the writer by Mr. Tiley S. McChesney, assistant secretary and treasurer, Board of Commissioners, port of New Orleans.

[2] H. Doc. 50, 61st Cong., 1st sess., p. 336.

Why ocean vessels do not navigate the part of the Mississippi that has sufficient depth is not difficult to understand. The business man would sum it up by saying, "It will not pay." Only a few of the more obvious difficulties need be set forth.

The Special Board of 1909, in its report, makes the following statement:

> Large, deep-draft, heavily loaded boats are unwieldy, especially when trying to back against the current; and when coming downstream such boats cannot be handled safely except in wide, deep channels, such as are far greater than can ever be expected in the Mississippi River above the mouth of Red River. While an ocean steamer might safely go slowly up the Mississippi against the current with a draft somewhat less than the channel depth over its bars, it is very doubtful whether it could ever get down the river with safety except during high freshets when all bars were deeply submerged.[1]

It is more economical for large ships to unload their entire cargo at one port than at several. The daily expense of one of these vessels is so great that they must avoid delays in loading and unloading whenever possible. Moreover port facilities on the Mississippi for ocean vessels could be constructed only at prohibitive costs.[2]

The imports at New Orleans are sent to a wide area ranging from points in Florida and Georgia to points in the northwestern and western parts of the United States. If this freight were carried by ocean vessels to St. Louis or Chicago, much of it would be reshipped, and the saving in freight charges would not be sufficient to compensate ocean vessels for the inland trip. Similar conditions exist concerning exports. The difference in the cost of collecting freight at St. Louis, for example, and the cost of collecting it at New Orleans would not be sufficient to pay river charges from St. Louis to New Orleans.

If there were no other reason why ocean vessels would not use the improved Mississippi, the very cost of navigation on a long treacherous channel by a seaworthy vessel would be prohibitive in competition with American railway rates, or with barge rates. The average cost of constructing an ocean vessel is $71 for each ton of freight carried. For lake vessels the cost is only $41.50, and for a Mississippi River steamboat and 10 barges carrying 10,000 tons of freight the cost is only $12 per ton of freight carried.[1]

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[1] H. Doc. 50, 61st Cong., 1st sess., p. 336.

[2] See above, chap. II.

Moreover, the lower speed of ocean vessels on inland channels increases the cost. If an ocean vessel could make six miles an hour on a trip from New Orleans to St. Louis, against the current, four miles an hour through the three canals and six locks past some thirty drawbridges from St. Louis to Joliet, and three miles an hour through the Drainage Canal and Chicago River past forty-one drawbridges from Joliet to Chicago; if this speed could be made with no stop for coaling, unloading, or fogs, the time required to make a round trip between New Orleans and Chicago would be more than twenty-four days.

It is sometimes said that the United States needs a deep waterway from the Gulf to the lakes through which to send battleships to meet the English navy on the lakes, in the event of war with Great Britain. Senator William Lorimer recently said:

> Great Britain has the St. Lawrence River that she can pass half her navy through. Coming through the St. Lawrence, they have fourteen-foot locks at all their falls. When war is rumored, and war is always rumored before it is declared, they can harbor half of their fleet on the St. Lawrence River, and, in twenty-four hours cross Lake Ontario. Here they have the Welland Canal, and in less than a week they can place that fleet upon the Great Lakes, and threaten, and destroy if they please, the commerce of these lakes; the commerce of the Great Lakes is the greatest commerce upon the face of the earth.[2]

It would hardly seem necessary to call Mr. Lorimer's attention to the fact that modern battleships cannot navigate channels 14 feet in depth, but as an example of how unwittingly people speak concerning the Lakes-to-the-Gulf Deep Waterway a quotation from Mr. Truman H. Newberry, secretary of the navy of the United States, may be given. He recently wrote:

> Taking the "Vermont" as a typical modern battleship, it is possible, but would be exceedingly difficult and expensive, to reduce the draft by removing

[1] H. Doc. 50, 61st Cong., 1st sess., p. 24.

[2] Address before the Committee of the Whole in the House of the Forty-sixth General Assembly of Illinois, May 6, 1909.

> all of the movable weights on board, the secondary and auxiliary batteries, coal, etc., to about 21—6, mean draft. In removing these weights, however, the tendency of the ship would be by the stern, the amount of which could be determined by exact calculations, but roughly 23′ would be considered a reasonable minimum.[1]

It may be added that this statement had reference to salt water, and that a draft of more than 23 feet would be required in fresh water. From this it is seen that the navy of the United States could not be floated on a 14-foot channel.

Mr. Robert Isham Randolph, secretary of the Internal Improvement Association of Illinois, in a recent address before the General Assembly of Illinois, said in regard to the English navy entering the Great Lakes through the St. Lawrence System:

> *Brassey's Naval Annual* for 1908 gives a list of the ships in the British navy. Of these not one single armored ship is small enough to get through these locks. The only ships in the entire British navy whose dimensions are small enough to admit of passage through these locks are torpedo gunboats, twelve in number, and the heaviest fighting equipment carried by any of them consists of two 4.7-inch guns and five six pounders.

These statements show the impossibility of sending either the navy of the United States or that of England to the Great Lakes via a 14-foot channel. Moreover, if the English fleet should ever head for the Great Lakes through an improved channel, it would require only a short time to place land artillery at some vulnerable point to sink England's proud fleet. England, of course, would not risk her navy in the Welland Canal (were it improved) during a war with the United States.

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[1] From a letter to Mr. Robert Isham Randolph.

# PART II

## FREIGHT MOVEMENT AND RATES

# CHAPTER V

## FREIGHT MOVEMENT BY WATER ON THE ROUTE

The present movement of freight by water on the Lakes-to-the-Gulf route is the chief consideration of this chapter. Other writers have shown the decline of river traffic on the Mississippi,[1] and it appears to be quite well known that the important commerce of former days has disappeared. The question that is uppermost in the minds of those giving thought to transportation on the Mississippi is: Will the river again become an important waterway? The freight movement is discussed for the several sections of the route, beginning at Chicago.

### 15. *Lake Commerce of Chicago*

Table VIII shows the shipments and receipts of freight at the Port of Chicago for the calendar year 1910. The lake commerce of the port is divided between the two harbors.[2] The iron ore, which comprises approximately one-half the total weight of the shipments and receipts, is discharged almost entirely at the Calumet Harbor; while the general merchandise, the fruits and vegetables, and the lumber come largely to the Chicago Harbor.

The lake commerce of Chicago should be important for several reasons. Chicago is located on the route of dense traffic between the seaboard and the West, and the broad open waterway of the Great Lakes lies parallel to this route. Half the iron ore of the globe is located south and west of Lake Superior, and again an open waterway links Chicago with the ore beds. The city obtains cheap coal, some of which comes via the lakes, and is therefore a great manufacturing center. And yet the lake commerce is scarcely more than 10,000,000 tons, one-half of which is a special commodity, iron ore. No record of the total movement of freight at Chicago is kept. The shipments and receipts at St. Louis for 1910, however, were more than 50,000,000 tons; and the total movement of freight at Chicago for that year was probably more than 200,000,000 tons. The lake commerce was only one-twentieth as much. This shows that water commerce is not very important in comparison with rail traffic even at Chicago.

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[1] F. H. Dixon, *A Traffic History of the Mississippi River System*, National Waterways Commission, 1909, Doc. 11; *Transportation by Water in the United States*, Part II, Department of Commerce and Labor.

[2] The Chicago Harbor and the Calumet Harbor are included in the Port of Chicago.

TABLE VIII

LAKE COMMERCE OF CHICAGO, 1910*

| Receipts | Tons | Shipments | Tons |
|---|---|---|---|
| Iron ore | 5,405,462 | Corn | 1,218,783 |
| Coal, hard | 1,001,718 | Merchandise, unclassified | 431,375 |
| Merchandise, unclassified | 724,868 | Flour | 281,399 |
| Coal, soft | 580,222 | Wheat | 275,145 |
| Lumber | 499,743 | Oats | 219,888 |
| Salt | 220,945 | Mill stuff | 205,608 |
| Manufactured iron | 107,788 | Manufactured iron | 43,720 |
| Sugar | 81,726 | Oil | 35,253 |
| Shingles | 45,279 | Oil cake | 15,802 |
| Cement | 45,078 | Broom-corn | 7,007 |
| Wheat | 44,190 | Wool and hair | 1,769 |
| Green fruits and vegetables | 20,057 | Grass seed | 892 |
| Railroad ties | 19,120 | Barley | 576 |
| Lath | 8,295 | Hides and leather | 388 |
| Post | 7,586 | Pork | 146 |
| Wood | 4,045 | | |
| Copper | 3,344 | Total | 2,737,751 |
| Telephone poles | 3,203 | | |
| Rye | 1,080 | | |
| Plaster | 866 | | |
| Hides and leather | 610 | | |
| Barley | 450 | | |
| Wool and hair | 440 | | |
| Total | 8,826,105 | | |

The main question in connection with the movement of freight at the Port of Chicago is: How much of the traffic could be carried on the proposed waterway? Of the receipts, the largest item, iron ore, enters the lakes through the ports of Lakes Superior and Michigan. Would this ore be carried to Peoria, St. Louis, or other points for smelting? There are several reasons why this is not probable. (1) The ore can be delivered much more cheaply at Chicago than at other points on the proposed route, owing to the difficulty and expense of navigation on the Chicago River and the canals between Chicago and Peoria. (2) Coal is delivered at Chicago from the East by the lakes, by rail in competition with the lake lines, and from the fields of Illinois and Indiana. This gives Chicago coal made cheap by competition between the eastern and the western fields and between rail and water carriers. (3) Chicago is an important manufacturing center and has a large supply of labor. (4) The iron industry is already located here, and strong economic advantages would be necessary to draw it to other points. (5) The advantages of Chicago as a market and a distributing center are the best on the American continent. For these reasons it seems improbable that the ore entering the Port of Chicago would be carried on the proposed waterway.

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* Exclusive of 1,770,984 tons of ore received at Gary. Statement furnished by Mr. John C. Ames, collector of customs. The various units of weight were changed to the uniform one of tons.

With the exception of ore, the largest item in the receipts is coal from the Lake Erie ports. The amount is approximately one-tenth of the total receipts of coal at Chicago, but the proportion received by lake has steadily declined for the past twenty years. The consumption of lake coal is confined largely to deliveries near the harbors; and since the boats carry only a small part of the coal from the East to Chicago in competition with the railways, it is probable that they could not pay the expense of navigation through a tedious inland channel and carry coal as cheaply to Peoria or St. Louis as the railways do. Moreover, at St. Louis the all-river competition from the Monongahela fields would be met. The all-river haul via the Ohio River would be cheaper than a combination rail, lake, and river haul through Chicago. At present coal is received at St. Louis for gas-making purposes from the West Virginia fields, but for fuel purposes the railways supply the Illinois coal cheaper than the boats do from either the West Virginia or western Kentucky fields.

The miscellaneous freight received at Chicago consists largely of imports coming from the Atlantic seaboard by rail, the St.

Lawrence River, or the Hudson and the Erie Canal; or of manufactures from the lake ports. The packet boats in carrying this freight would meet the difficulties of slow speed and high cost through the channels between Chicago and St. Louis. Moreover, the rail rates are almost the same on this freight from origin to St. Louis as to Chicago; and since the boats carry so small a proportion of the west-bound merchandise between the seaboard and Chicago, it is plain that they could carry much less through the inland channel to St. Louis, if indeed they could obtain any of this traffic.

The lumber that is received by boat finds its best market at Chicago, and probably none of it could bear the expense of being towed through the channel and be marketed to advantage at other points on the route.

A portion of the salt received by boat is shipped out by rail, but only a small part of it goes to river points, and the rail rates on salt are so low that it is problematical whether it could bear the expense of the tedious voyage through the channel with the attendant insurance and slow speed which would add greatly to the cost of the trip. It should also be borne in mind that the large lake freighters cannot navigate the Chicago River, and the smaller vessels would operate at higher cost on the lakes in competition with the larger boats.

Concerning the shipping of manufactured iron from Chicago via the proposed waterway, Mr. Frank T. Bentley, traffic manager for the Illinois Steel Company, stated to the writer that he could make no use whatever of the proposed route even if it were made twenty or more feet in depth. Mr. Bentley has charge of one of the largest lake fleets and is one of the ablest industrial traffic managers in the country.

The rates on sugar are less to St. Louis from New Orleans than to Chicago from the seaboard, and hence the sugar could not be carried to St. Louis. The grain would move to the Atlantic by lake rather than for 1,659 miles by river to the Gulf. The green fruits and vegetables from the east shore of Lake Michigan bring better prices at Chicago than at other points on the proposed route.

The shipments from Chicago are largely grain and grain products and manufactures. The grain and products go east while a large portion of the manufactures goes to the ports of Lakes Michigan and Superior. The manufactures originate largely at Chicago and would not furnish freight for boat lines on the waterway; but a part of the grain originates along the route from St. Louis to Chicago. Could boat lines obtain this grain along the route, convey it through the proposed channel and the lakes, and thus save transhipment at Chicago from rail to boat line? Important boats must receive grain from elevators in large amounts. If they could do this at Peoria or St. Louis, the cost of collecting it at those points would be almost the same as at Chicago; and there would be little compensation for bringing the grain to Chicago through the locks and canals. If small vessels were used it would still be necessary to tranship to lake vessels at Chicago, or be at an economic disadvantage in competition with the large boats. It would also be cheaper to ship grain from St. Louis down stream via the Mississippi than up stream through locks and canals.

### 16. *River Commerce between Chicago and Peoria*

While the Sanitary and Ship Canal of Chicago was being constructed, it was predicted freely that a large commerce would be developed along the new channel. But thus far there has been no material increase in the commerce of the South Branch of the Chicago River, and there is no freight movement on the canal except an occasional flatboat of stone. This stone was excavated from the rock section of the canal and is used to construct breakwaters on the lake shore. Where there is no railway paralleling the shore the towing companies carry the stone. But where there is a railway paralleling the shore, the stone is carried by rail for a less charge than the towboat companies make for towing it through the Chicago River. That is, where the origin and destination are both competitive points even stone is carried more cheaply by rail. And to points of delivery in the city of Chicago other than on the lake and the river, the railways carry the stone.

Since July, 1910, there has been an open channel from Chicago to the Mississippi through the Chicago River, the Sanitary Canal, the Illinois and Michigan Canal, and the Illinois River. Over this route for a number of years an important commerce passed between Chicago and Peoria. The waterway is as good now as it ever was, but not a commercial vessel has yet made a trip through it since it was opened in 1910. Although the channel will not accommodate important vessels, it was said at the time the bill requiring the channel to be opened was before the legislature that there was a boat company ready to begin operation on the route. The company has probably since learned that no freight can be obtained at rates high enough to meet the cost of operation. The distance rates in Illinois are so low that it is doubtful whether they would yield revenue enough for short hauls to meet the cost of loading and unloading. Railways parallel this route on both sides from Chicago almost to Joliet. From Joliet to La Salle there are several railways on and near the north bank of the canal, and others not very far from the south bank. And at every town there is a line crossing the canal. No important commerce could be developed on a waterway over this route under the conditions outlined above. This is true without regard to the dimensions of the channel. On the lower Mississippi where the channel is thirty feet in depth and of unlimited width, there is no important commerce between rail points. The river freight in the main is that which originates at, or is destined to, points within the levees or other non-rail points. On the stretch between Chicago and Peoria there is no territory shut in by levees, and every town is served by a railway. Moreover, on the lower Mississippi the boat lines maintain a minimum scale for class rates of 30 cents per hundred pounds on the first class for the shortest hauls, while the Illinois distance tariff sets a minimum of 7.5 cents on the same class, with a minimum of 1.8 cents on tenth class. In view of these traffic conditions, the expenditure of twenty or thirty millions of dollars by the state of Illinois for a waterway[1] appears to be unwarranted.

### 17. *River Shipping between Peoria and St. Louis*

The freight movement on the Illinois River between Peoria, Ill., and St. Louis, Mo., is shown in Table IX.

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[1] The writer has reference to the waterway as a freight carrier. Water power and related topics are excluded from consideration here.

Between Pekin, Ill., and Grafton, Ill., there is no railway closely paralleling any long stretch of the river, and few railways cross this section of the stream. Moreover, Calhoun County, which is served by no railway, furnishes the larger portion of the traffic shown in the table. If this section were as well served by rail as that between Chicago and Peoria, it is probable that the packet boat company now operating on it would be forced to retire before its more efficient competitors, the railways. As conditions are, the traffic is scarcely sufficient to maintain the single packet line operating on this section of the route, although there is a low-water depth of seven feet throughout the Illinois River south of Peoria.

TABLE IX

Freight Movement on the Illinois River, 1910[*]

| | Locks | | |
|---|---|---|---|
| | La Grange | Kampsville | Average |
| | Tons | Tons | Tons |
| Merchandise | 2,762 | 6,166 | 4,464 |
| Live stock | 89 | 13,655 | 6,872 |
| Grain | 8,848 | 2,548 | 5,698 |
| Apples | 217 | 364 | 291 |
| Logs | 7,017 | 4,869 | 5,943 |
| Shells | 3,018 | 3,025 | 3,021 |
| Staves | 900 | 900 | 900 |
| Totals | 22,851 | 31,527 | 27,189 |

[*] *Annual Report of the Chief of Engineers*, 1910, p. 2168.

## 18. *River Commerce between St. Louis and New Orleans*

Disregarding New Orleans, which is both an ocean port and a river port, St. Louis is the most important shipping point on the Mississippi River. At one time it was also the most typical river town. Its location on the middle Mississippi, with the Missouri and the Illinois rivers above and the Ohio and its tributaries below, and with 16,000 miles of navigable rivers accessible, would suggest that there, if anywhere, river traffic should continue to be of importance. Table X shows, however, that the river traffic has rapidly declined at St. Louis during recent years, and that rail traffic has increased so remarkably that the former is a mere bagatelle in comparison with the latter. In 1871 the total shipments and receipts by river were more than one-half those by rail; while in 1910 they had decreased to 191,965 tons, while those by rail had increased to 51,726,135 tons. The river commerce decreased from approximately one-third of the total to less than four-tenths of 1 per cent of the shipments and receipts by river and by rail.

TABLE X

SHIPMENTS AND RECEIPTS OF FREIGHT IN TONS AT ST. LOUIS, BY RAIL AND BY RIVER FOR SPECIFIED YEARS 1871–1910[*]

| Year | Upper Mississippi River | Lower Mississippi River | Illinois River | Missouri River | Ohio River |
|---|---|---|---|---|---|
| 1871........ | 315,854 | 791,187 | 156,936 | 117,017 | 214,325 |
| 1875........ | 294,325 | 495,255 | 172,465 | 55,260 | 275,830 |
| 1880........ | 281,355 | 1,037,005 | 165,540 | 75,440 | 349,555 |
| 1885........ | 165,740 | 559,800 | 85,695 | 27,205 | 150,725 |
| 1890........ | 151,507 | 765,880 | 26,390 | 31,385 | 102,500 |
| 1895........ | 108,950 | 480,245 | 37,640 | 8,775 | 35,440 |
| 1900........ | 86,745 | 461,830 | 25,925 | 3,950 | 2,700 |
| 1905........ | 56,920 | 142,815 | 14,950 | 8,285 | 125,755 |
| 1910........ | 25,900 | 79,265 | 14,735 | 240 | 64,800 |

TABLE X—*Continued*

| Year | Cumberland and Tennessee Rivers | Red, White, Arkansas, and Ouachita Rivers | Total by River | Total by Rail | Grand Total |
|---|---|---|---|---|---|
| 1871........ | 12,409 | 47,171 | 1,654,899 | 3,258,203 | 4,913,102 |
| 1875........ | 7,905 | 1,580 | 1,302,620 | 4,534,220 | 5,836,840 |
| 1880........ | 16,330 | 6,160 | 1,931,385 | 8,852,204 | 10,783,589 |
| 1885........ | 19,325 | 4,750 | 1,013,240 | 10,301,301 | 11,314,541 |
| 1890........ | 48,810 | 139,120 | 1,265,592 | 15,240,141 | 16,505,733 |
| 1895........ | 41,110 | 100,025 | 812,185 | 15,838,671 | 16,650,856 |
| 1900........ | 103,100 | 73,340 | 757,590 | 24,555,750 | 25,313,340 |
| 1905........ | 20,490 | 1,210 | 370,425 | 39,141,663 | 39,512,088 |
| 1910........ | 6,975 | ...... | 191,965 | 51,726,135 | 51,918,100 |

[*] Compiled from Frank High Dixon, *A Traffic History of the Mississippi River System*, 1909; *Annual Statements of Merchants' Exchange of St. Louis*, 1910.

Both engineers and economic writers have been insistent in calling attention to the view that there could be no large amount of river business for lack of freight to move, or for lack of the kind of freight that would seek the river. They have pointed to the traffic on the Rhine, and suggested that when the Mississippi Valley is as densely populated as the Rhine Valley, a great increase in traffic on the Mississippi may be expected. But the history of the traffic movement at St. Louis, as shown in Table X, does not confirm this view. At every town of importance on the lower Mississippi the population and amount of freight handled have increased during this period, and yet there has been a rapid decrease in the amount of river business. The cause of the decline and the probability of a revival in river traffic will be discussed more in detail in connection with commodity rates in a later section of this study.

(*a*) *Shipping of 1910 Compared with That of 1901.*—Beginning with 1901 the Mississippi River Commission has kept an annual record of the movement of commodities on the Mississippi between St. Louis and New Orleans by stretches. Each of the commodity items includes various specific articles, but the record is a very valuable one in the study of the movement of commodities on the river. Table XI shows the freight movement for the year 1910 in comparison with that of 1901. Both the shipments and receipts are included in the figures for each of the stretches, hence the actual amount of freight handled was much less than that shown. The record for 1901 was not complete, since it was the first. The movement of stone, gravel, and sand was not reported, and that of logs between Vicksburg and New Orleans was omitted; while if there was a movement of oil, it was probably included in the item of unclassified freight.

It may be seen from the table that the total decrease was so marked that the grand total in 1910 was scarcely more than one-third that of 1901, although the local movement of stone, gravel, and sand and of oil and logs increased remarkably. Of course the grand total magnifies the decrease absolutely but not relatively. The increase in the use of sand is due largely to the development of the manufacture of concrete and tile at Memphis, Greenville, and other points, and to the movement of gravel at Baton Rouge. The stone, sand, and gravel are carried on flatboats for short distances and constitute little more than harbor traffic. The increase in oil is due to the location of the plant of the Standard Oil Company at Baton Rouge, and the distribution of fuel oil by this plant to the sugar refineries and other industries south of Baton Rouge, as well as to the shipment of refined oil down the river in ocean tank barges.

It should be stated here, however, that one of the important factors in the decrease of the river business was the abandonment

TABLE XI

SHIPPING VIA THE MISSISSIPPI RIVER BETWEEN ST. LOUIS AND NEW ORLEANS FOR 1910 COMPARED WITH 1901*

| | | 1901 | 1910 | Decrease |
|---|---|---|---|---|
| Between St. Louis and Cairo | Grain and its products | 137,954 | 16,981 | 120,973 |
| | Cotton | 308 | 972 | 664† |
| | Cotton seed and its products | ...... | 982 | 982† |
| | Live stock | 31,981 | 6,581 | 25,400 |
| | Coal and coke | 80,950 | 113,673 | 32,723† |
| | Lumber | 94,704 | 5,786 | 88,918 |
| | Logs | 37,600 | 44,555 | 6,955† |
| | Iron, steel, and metals | 29,122 | 188 | 28,934 |
| | Groceries and provisions | 83,656 | 10,694 | 72,962 |
| | Oil | ...... | 35 | 35† |
| | Stone, gravel, and sand | ...... | 45,314 | 45,314† |
| | Unclassified and miscellaneous freight | 67,573 | 43,998 | 23,575 |
| | Totals | 563,848 | 289,759 | 274,089 |
| Cairo and Memphis | Grain and its products | 103,599 | 15,669 | 87,930 |
| | Cotton | 13,647 | 13,815 | 168† |
| | Cotton seed and its products | 21,750 | 8,276 | 13,474 |
| | Live stock | 1,903 | 3,780 | 1,877† |
| | Coal and coke | 1,359,462 | 508,696 | 850,766 |
| | Lumber | 228,493 | 72,880 | 155,613 |
| | Logs | 309,395 | 335,662 | 26,267† |
| | Iron, steel, and metals | 55,572 | 20,828 | 34,744 |
| | Groceries and provisions | 37,340 | 17,211 | 20,129 |
| | Oil | ...... | ...... | ....... |
| | Stone, gravel, and sand | ...... | 21,481 | 21,481† |
| | Unclassified and miscellaneous freight | 175,141 | 20,897 | 154,244 |
| | Totals | 2,306,302 | 1,039,195 | 1,267,107 |
| Memphis and Vicksburg | Grain and its products | 143,791 | 20,295 | 123,496 |
| | Cotton | 49,533 | 20,770 | 28,783 |
| | Cotton seed and its products | 39,855 | 26,743 | 13,112 |
| | Live stock | 5,200 | 11,791 | 6,591† |
| | Coal and coke | 1,281,393 | 392,561 | 888,832 |
| | Lumber | 55,747 | 59,378 | 3,631† |
| | Logs | 129,286 | 187,950 | 58,664† |
| | Iron, steel, and metals | 32,851 | 15,421 | 17,340 |
| | Groceries and provisions | 74,221 | 34,560 | 39,661 |
| | Oil | ...... | 2,222 | 2,222† |
| | Stone, gravel, and sand | ...... | 186,516 | 186,516† |
| | Unclassified and miscellaneous freight | 44,442 | 22,179 | 22,263 |
| | Totals | 1,856,319 | 980,386 | 875,933 |

TABLE XI—*Continued*

| | | 1901 | 1910 | Decrease |
|---|---|---|---|---|
| Between Vicksburg and New Orleans | Grain and its products | 112,314 | 28,470 | 83,844 |
| | Cotton | 71,925 | 6,578 | 64,347 |
| | Cotton seed and its products | 60,936 | 10,339 | 49,597 |
| | Live stock | 2,954 | 1,846 | 1,108 |
| | Coal and coke | 1,225,970 | 364,559 | 861,411 |
| | Lumber | 37,359 | 14,903 | 22,456 |
| | Logs | ...... | 71,538 | 71,538† |
| | Iron, steel, and metals | 31,272 | 9,707 | 21,565 |
| | Groceries and provisions | 154,887 | 58,941 | 95,946† |
| | Oil | ...... | 223,984 | 223,984† |
| | Stone, gravel, and sand | ...... | 657,656 | 657,656† |
| | Unclassified and miscellaneous freight | 137,557 | 81,709 | 55,848 |
| | Totals | 1,835,174 | 1,530,230 | 304,944 |
| | COLLECTION OF TOTALS | | | |
| | St. Louis and Cairo | 653,848 | 289,759 | 274,089 |
| | Cairo and Memphis | 2,306,302 | 1,039,195 | 1,267,107 |
| | Memphis and Vicksburg | 1,856,339 | 980,386 | 875,953 |
| | Vicksburg and New Orleans | 1,835,174 | 1,530,230 | 304,944 |
| | Grand Total‡ | 6,561,663 | 3,839,570 | 2,722,093 |

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* *Annual Reports of the Mississippi River Commission*, 1902 and 1911.

† The dagger indicates that there has been an increase or that the movement was not reported in 1901.

‡ The grand total for the several stretches contains duplication but may be used for rough comparison.

of the river by the Mississippi Valley Transportation Company in 1904. This company in 1901 was operating between St. Louis and New Orleans a barge line which carried grain and miscellaneous freight. From 1904 to June, 1911, no barge line was operated between St. Louis and New Orleans. In June, 1911, the through traffic was revived by a new company under the old name, the Mississippi Valley Transportation Company. Six trips north bound and five south bound were made during 1911, and 6,110 tons of freight were carried north bound and 5,015 south bound. Since November, 1911, the company has ceased operations, and the St. Louis–Gulf Steel Barge Line is now (July, 1912) in the process of organization to succeed the Mississippi Valley Transportation Company. If the total movement of 11,125 tons were added to the 1910 statistics, the increase in the grand total would be only 44,500 tons (11,125 multiplied by 4, corresponding to the four stretches), and the grand total would still be less than one-half that of 1901 notwithstanding the omissions of that year.[1]

On the section of the route between St. Louis and Cairo grain and grain products, live stock, lumber, iron and steel, groceries and provisions, and miscellaneous freight show important decreases. The important increases were coal, and stone, gravel, and sand.

Between Cairo and Memphis, the grain, cotton seed, coal, lumber, iron and steel, groceries, and miscellaneous freight show significant decreases; while live stock and stone, gravel, and sand show increases or were reported for the first time.

Between Memphis and Vicksburg, grain, cotton, cotton seed, coal, iron and steel, groceries, and miscellaneous freight show substantial decreases; while live stock, logs, and stone, gravel, and sand either show an increase or were reported for the first time.

Between Vicksburg and New Orleans, grain, cotton, cotton seed, live stock, coal, lumber, iron and steel, groceries, and miscellaneous freight show important decreases; while logs and oil, and stone, gravel, and sand were reported for the first time. The oil traffic is a new item which has been discussed above. Logs were carried in 1901 but were not reported.

(*b*) *The Local Nature of River Commerce.*—Table XII shows the local nature of the river traffic between St. Louis and New Orleans for 1907. This was the year in which a larger tonnage was carried by American railways than in any preceding year, or for any one of the years immediately succeeding. The table was prepared by the special board of engineers in 1909 and is the only table showing the local nature of the traffic on the river. It shows that the traffic is largely received at waylandings and discharged at large cities, such as St. Louis, Memphis, Greenville, Vicksburg, Baton Rouge, and New Orleans; or is received at the cities for discharge at the landings. The amount of each commodity received and discharged at important stations and on the several sections of the route is shown. By following the several items down the columns, it is possible to get an excellent idea of the very limited amount of freight that is carried between the important rail centers

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[1] The statistics for the calendar year 1911 are to be available in July, 1912.

## TABLE XII*

### Tonnage and Traffic of the Mississippi River, St. Louis to New Orleans, Calendar Year 1907

| Lower Mississippi, St. Louis to New Orleans | Receipts and Deliveries at Principal Points and Way Stations | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Grain and Its Products | Cotton | Cotton Seed | Live Stock | Coal and Coke | Lumber | Logs | Iron, Steel and Metals | Groceries and Provisions | Oil | Stone, Gravel, and Sand | Unclassified and Miscellaneous |
| | Tons | Tons | Tons | Tons | Tons | Tons | Tons | Tons | Tons | Tons | Tons | Tons |
| Down Stream | | | | | | | | | | | | |
| Received at St. Louis | 2,782 | ..... | ..... | 319 | 10 | 226 | 375 | 709 | 3,485 | 83 | ..... | 34,863 |
| Received between St. Louis and Cairo | 10,392 | ..... | ..... | 374 | ....... | 78 | 19,800 | ..... | ..... | ..... | 1,000 | 3,238 |
| Discharged between St. Louis and Cairo | 1,576 | ..... | ..... | 540 | ....... | 214 | 6,000 | 444 | 2,730 | 78 | 1,000 | 17,250 |
| Discharged at Cairo | 11,598 | ..... | ..... | 153 | 10 | 90 | 14,175 | 265 | 755 | 5 | ..... | 4,301 |
| Received at Cairo | ..... | ..... | ..... | ..... | 1,067,154 | ..... | ..... | 27,938 | ..... | ..... | 14,200 | 11,889 |
| Received between Cairo and Memphis | 1,000 | 10,337 | 8,201 | ..... | 4,000 | 8,292 | 170,980 | ..... | ..... | ..... | 1,000 | 5,702 |
| Discharged between Cairo and Memphis | 1,000 | ..... | 1,602 | ..... | 28,950 | ..... | 37,000 | 676 | ..... | ..... | 1,000 | 16,730 |
| Discharged at Memphis | ..... | 10,337 | 6,599 | ..... | 205,825 | 8,292 | 133,980 | 9,290 | ..... | ..... | 1,600 | 15,347 |
| Received at Memphis | 13,094 | ..... | 40 | 2,196 | 24,070 | 1,952 | ..... | 2,774 | 12,273 | 364 | 10,060 | 21,510 |
| Received between Memphis and Vicksburg | 3,594 | 11,811 | 8,534 | 2,173 | 10,520 | 573 | 218,000 | 358 | 2,940 | 168 | 878,294 | 4,123 |
| Discharged between Memphis and Vicksburg | 16,688 | 5,171 | 1,774 | 4,301 | 35,129 | 2,525 | 153,000 | 3,374 | 14,909 | 525 | 791,154 | 25,124 |
| Discharged at Vicksburg | ..... | 1,795 | 4,050 | 18 | 24,340 | ..... | 65,000 | 4,754 | 304 | 7 | 100,000 | 279 |
| Received at Vicksburg | 410 | 483 | ..... | 520 | ....... | 732 | ..... | ..... | 3,124 | 19 | ..... | 9,157 |
| Received between Vicksburg and New Orleans | 19,254 | 29,562 | 26,458 | 762 | 52,200 | 21,712 | 167,007 | 450 | 43,510 | 101,497 | 138,351 | 96,952 |
| Discharged between Vicksburg and New Orleans | 770 | 1,467 | 2,170 | 1,130 | 116,200 | 1,119 | 87,007 | 500 | 15,260 | 70,028 | 3,200 | 21,824 |
| Discharged at New Orleans | 18,894 | 33,423 | 27,038 | 202 | 747,500 | 21,325 | 80,000 | 12,926 | 31,374 | 31,488 | 144,951 | 86,579 |
| Up Stream | | | | | | | | | | | | |
| Received at New Orleans | 6,989 | ..... | ..... | 402 | 300 | 8,432 | ..... | 2,125 | 27,191 | 86,749 | ..... | 15,802 |
| Received between New Orleans and Vicksburg | 79 | 3,370 | 43,034 | 600 | 200 | 13,302 | 19,800 | 200 | 500 | 29,497 | ..... | 14,894 |
| Discharged between New Orleans and Vicksburg | 7,068 | 2,489 | 11,206 | 1,002 | 500 | 724 | 5,000 | 2,325 | 22,052 | 112,636 | ..... | 30,473 |
| Discharged at Vicksburg | ..... | 881 | 31,828 | ..... | ....... | ..... | ..... | ..... | ..... | ..... | ..... | 100 |
| Received at Vicksburg | 3,946 | 54 | ..... | 102 | 50 | 1,840 | ..... | 323 | 4,372 | 42 | ..... | 3,363 |
| Received between Vicksburg and Memphis | 1,303 | 25,913 | 15,632 | 3,125 | 15 | 121,012 | 145,895 | 367 | 2,422 | 47 | ..... | 9,174 |
| Discharged between Vicksburg and Memphis | 5,209 | 9,409 | 7,288 | 1,955 | 65 | 337 | 20,200 | 572 | 9,715 | 89 | ..... | 7,928 |
| Discharged at Memphis | 40 | 16,558 | 8,344 | 1,272 | ....... | 15,933 | 79,795 | 118 | 201 | 3,610 | ..... | 4,732 |
| Received at Memphis | ..... | 534 | ..... | ..... | ....... | ..... | 1,800 | ..... | ..... | ..... | ..... | 13,013 |
| Received between Memphis and Cairo | 3,193 | 1,037 | 1,075 | ..... | ....... | 35,589 | 218,889 | ..... | ..... | ..... | ..... | 36,342 |
| Discharged between Memphis and Cairo | ..... | 19 | 98 | ..... | ....... | ..... | 11,000 | ..... | ..... | ..... | ..... | 5,748 |
| Discharged at Cairo | 3,193 | 572 | 977 | ..... | ....... | 161,718 | 231,389 | ..... | 2,517 | ..... | ..... | 37,437 |
| Received at Cairo | 75 | 542 | 260 | 268 | 166,350 | 23,156 | ..... | ..... | 195 | ..... | ..... | 2,533 |
| Received between Cairo and St. Louis | 8,161 | ..... | ..... | 10,114 | ....... | 257 | ..... | 30 | 700 | 4 | ..... | 9,149 |
| Discharged between Cairo and St. Louis | 442 | ..... | ..... | 28 | ....... | ..... | ..... | ..... | 25 | ..... | ..... | 975 |
| Discharged at St. Louis | 7,794 | 1,522 | 260 | 10,354 | 166,350 | 24,876 | 39,000 | 30 | 870 | 4 | ..... | 15,877 |

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*Table from H. Doc. 50, 61st Cong., 1st sess., 1909.

such as St. Louis and Memphis, St. Louis and New Orleans, and Memphis and New Orleans.

Only three items are shown to have been carried in important amounts over long distances, namely: coal and coke, lumber, and iron, steel, and metals. The coal originates on the Monongahela River, the iron in the vicinity of Pittsburgh, and the lumber largely at mills on the Yazoo and Sunflower rivers. Except iron, these commodities originate at non-rail points.

Coal is the one commodity that is still shipped in large volume for long distances on the lower Mississippi River. As shown in the table, in 1907, 1,067,154 tons were borne into the Mississippi at Cairo and 747,500 tons were carried to New Orleans. In 1910, however, only 364,559 tons were carried past Vicksburg. A large portion of the river coal was formerly consumed by the sugar factories on the river, by the ocean and river vessels at New Orleans, and, for engine fuel, by the railways west of New Orleans. The Standard Oil Company now supplies fuel oil to the sugar refineries; the western roads also use oil largely as fuel, and the ocean vessels are beginning to use Alabama coal and oil instead of river coal. These changes will probably be permanent, and in the future the Pittsburgh coal will find only a limited demand on the lower Mississippi.

Lumber is also carried over long distances in significant amount. The table shows that 121,012 tons were received between Vicksburg and Memphis and borne largely to Cairo and vicinity and to St. Louis. It is received largely from mills on the Yazoo and Sunflower rivers, which are not served by rail connections. If spurs were extended to these mills, it is probable there would no longer be a very important river traffic in lumber for long distances. In 1910, only 59,378 tons were carried between Vicksburg and Memphis. That is, the receipts and shipments on the entire stretch were less than half the amount received between Vicksburg and Memphis in 1907 for the up-stream movement. There is a large shipment of lumber from Vicksburg proper to and through Cairo, and it is carried by rail exclusively.

From the Ohio River to cities on the lower Mississippi 27,938 tons of iron, steel, and metals were conveyed in 1907; and 12,926 tons were carried as far as New Orleans. This traffic has since declined remarkably as shown in Table XI. Of course there was no packet line in operation in 1907 between St. Louis and New Orleans or between Memphis and New Orleans. The railways carried the freight between these large centers.

It is a most interesting experiment that the new barge line is now (1911–12) making in regard to the ability of boat lines to compete with railways between these large cities. Here is one of the best river channels on the globe, and a large traffic is carried parallel to it by the railways. Barges have been found mor economical as freight carriers on rivers than any other water craft, and they do not require more water than is now afforded by the Mississippi between St. Louis and New Orleans. The new barge employed in 1911 is of the most modern type of steel barge having water-tight compartments, steel hull, and its own loading machinery. Here in this open river of adequate depth, where high barge speed can be made, is the most favorable opportunity that can be given river craft for carrying traffic in competition with railways. The railways must publish their rates and give thirty days' notice of changes, and if they lower rates to meet water competition they cannot raise them again without first showing before the commission that the raise should be made on other grounds than the elimination of competition. This provision together with the application of the long-and-short-haul clause gives the water carrier, which is not required to publish its rates, an excellent opportunity to obtain competitive traffic. If an important traffic cannot be developed between St. Louis and New Orleans, it would seem unnecessary to expend a large sum to construct a much less efficient channel, made up of locks and canals on which wide barge fleets cannot be operated and narrow ones must make slow speed, between St. Louis and Chicago.

However, the writer does not believe the new barge line will have all smooth sailing even on the lower Mississippi. The old company had an established trade in grain down stream and elevators at St. Louis sufficient to contain a large cargo. This down-stream freight was largest in bulk and least expensive to carry. In fact the grain traffic was the chief source of revenue. But as the railways extended through routes to the south, the barge line found its traffic decreasing so rapidly that it was forced to abandon the through traffic between St. Louis and New Orleans. The new line has some advantages over the old one, as shown above, but it also has serious handicaps that the old line did not have. The river elevators are gone, the railways and the farmers have located elevators on the farms and at important rail junctions, and the railways have greatly increased their efficiency since 1903. Spurs have been laid for almost every important farmer, and large cars are frequently used instead of granaries in which to put grain, which goes to the Atlantic or Gulf ports without breaking bulk. With the most important traffic of the old line apparently irretrievably lost, the possibility of building up a new traffic of miscellaneous freight is the only hope of success for the new line.

# CHAPTER VI

## FREIGHT MOVEMENT VIA THE MORE IMPORTANT RAILWAYS PARALLEL TO THE PROPOSED WATERWAY

### 19. *Average Rates and Ton-Mile Charges by Rail*

The present rail traffic between the larger river towns and cities has been studied at first hand in an attempt to ascertain what freight would probably be shipped by the proposed deep waterway. Statements of freight movement have been received from the most important carriers[1] along the route, and have been merged and tabulated. Table XIII shows the freight movement included, and the accompanying map shows the railways over which the freight moved. While the table does not show the total volume of business moving between the stations, it does show a large part of the movement between most stations, and the average rates and ton-mile charges given are approximately those for the total movement.

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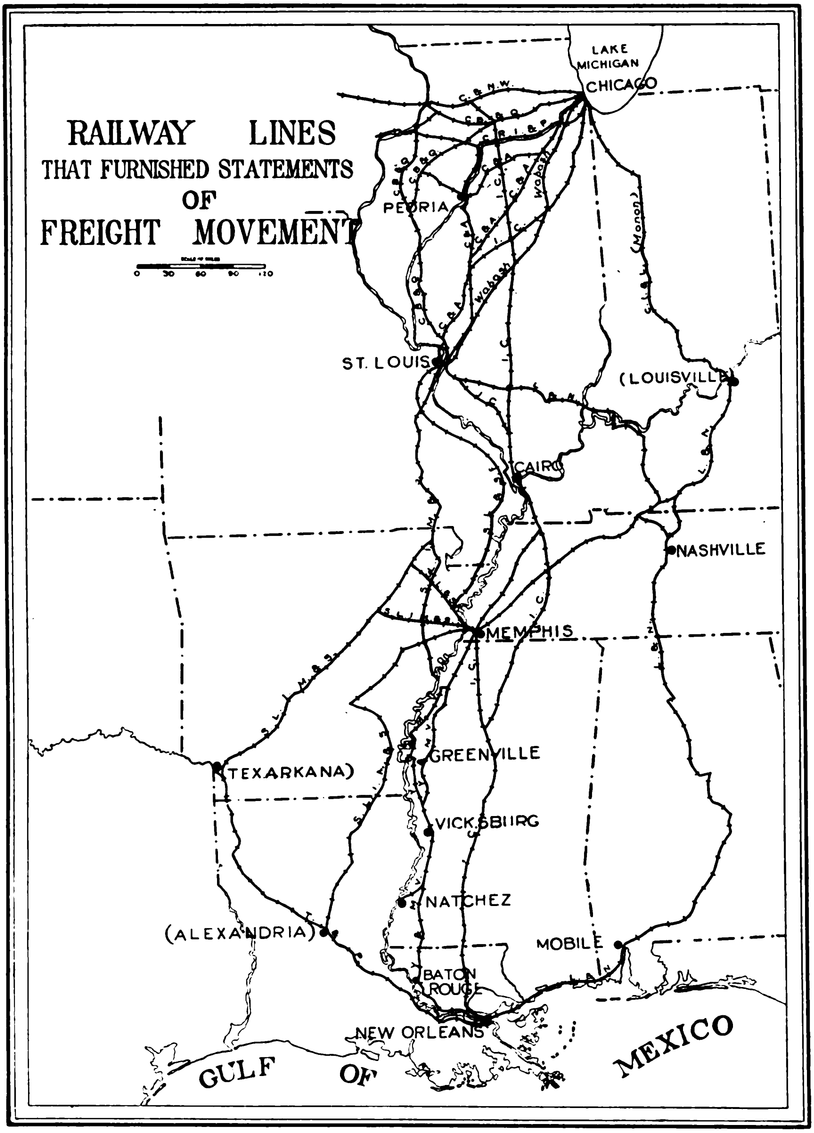
[1] To obtain the statistics from some of the carriers, the writer found it necessary to compile the totals from the monthly statement "slips." A few important railways did not send statements because of the expense involved. The general auditor of one of the most important carriers between St. Louis and New Orleans said that as a good citizen he would like to aid the writer, but that the subject was not of sufficient financial interest to his company to justify the expense of making the statement. The officials of the railways in general showed considerable lack of interest in the subject. It seems to be the general opinion of the traffic officials that however much money may be spent on the waterway it will not greatly injure the railways.



The table includes freight shipped on local billing, rebilling, and through billing. It includes carload and less than carload ship-

## TABLE XIII

### FREIGHT MOVEMENT PARALLEL TO THE PROPOSED WATERWAY VIA RAILWAYS SHOWN ON THE ACCOMPANYING MAP, CALENDAR YEAR 1909

| | Weight (Tons) | Revenue (Dollars) | Rate* (Cents) | Distance (Miles) | Ton-Mile Charge (Mills) |
|---|---|---|---|---|---|
| **BETWEEN CHICAGO AND PEORIA** | | | | | |
| South bound | 148,570 | 157,593 | 5 | †161 | 6.6 |
| North bound | 172,866 | 197,533 | 5 | 161 | 7.1 |
| Totals | 321,436 | 355,126 | 5 | 161 | 6.8 |
| **BETWEEN CHICAGO AND ST. LOUIS** | | | | | |
| South bound | 677,291 | 1,095,585 | 8 | 293 | 5.5 |
| North bound | 981,337 | 1,366,190 | 7 | 293 | 4.8 |
| Totals | 1,658,628 | 2,461,775 | 7 | 293 | 5.1 |
| **BETWEEN CHICAGO AND CAIRO** | | | | | |
| South bound | 20,112 | 42,066 | 10 | 364 | 5.7 |
| North bound | 37,862 | 82,349 | 11 | 364 | 6.7 |
| Totals | 57,974 | 124,415 | 11 | 364 | 5.8 |
| **BETWEEN CHICAGO AND MEMPHIS** | | | | | |
| South bound | 95,900 | 306,067 | 16 | 526 | 6.1 |
| North bound | 35,443 | 130,465 | 18 | 526 | 6.9 |
| Totals | 131,343 | 436,532 | 17 | 526 | 6.3 |
| **BETWEEN CHICAGO AND GREENVILLE, MISS.** | | | | | |
| South bound | 2,502 | 13,070 | 33 | 676 | 7.7 |
| North bound | 6,425 | 23,714 | 19 | 676 | 5.4 |
| Totals | 8,927 | 36,784 | 21 | 676 | 6.1 |
| **BETWEEN CHICAGO AND VICKSBURG, MISS.** | | | | | |
| South bound | 4,301 | 28,515 | 33 | 746 | 8.8 |
| North bound | 7,732 | 32,683 | 21 | 746 | 5.6 |
| Totals | 12,033 | 61,198 | 26 | 746 | 6.7 |

* The rates are the average rates per hundred pounds, computed from the total weight and total revenue. Fractions of ½ cent and more are tabulated as an additional cent, those of less than ½ cent are disregarded.

† Distance via Chicago, Rock Island & Pacific Railway. Other distances given are via the Illinois Central Railroad.

TABLE XIII—*Continued*

| | Weight (Tons) | Revenue (Dollars) | Rate (Cents) | Distance (Miles) | Ton-Mile Charge (Mills) |
|---|---|---|---|---|---|
| BETWEEN CHICAGO AND NATCHEZ, MISS. | | | | | |
| South bound | 2,432 | 13,096 | 26 | 823 | 6.5 |
| North bound | 1,792 | 8,494 | 23 | 823 | 5.7 |
| Totals | 4,224 | 21,590 | 25 | 823 | 6.5 |
| BETWEEN CHICAGO AND BATON ROUGE, LA. | | | | | |
| South bound | 1,491 | 8,403 | 28 | 892 | 6.3 |
| North bound | 1,739 | 7,245 | 21 | 892 | 4.7 |
| Totals | 3,230 | 15,648 | 24 | 892 | 5.4 |
| BETWEEN CHICAGO AND NEW ORLEANS | | | | | |
| South bound | 77,919 | 353,735 | 23 | 981 | 4.5 |
| North bound | 192,416 | 1,018,700 | 26 | 981 | 5.4 |
| Totals | 270,335 | 1,372,435 | 25 | 981 | 5.3 |
| BETWEEN ST. LOUIS AND MEMPHIS | | | | | |
| South bound | 125,474 | 252,341 | 10 | 314 | 6.4 |
| North bound | 73,952 | 154,478 | 10 | 314 | 6.6 |
| Totals | 199,426 | 406,819 | 10 | 314 | 6.6 |
| BETWEEN ST. LOUIS AND VICKSBURG, MISS. | | | | | |
| South bound | 6,799 | 23,185 | 17 | 534 | 6.4 |
| North bound | 1,539 | 4,166 | 14 | 534 | 5.1 |
| Totals | 8,338 | 27,341 | 16 | 534 | 6.1 |
| BETWEEN ST. LOUIS AND NEW ORLEANS | | | | | |
| South bound | 141,880 | 560,426 | 20 | 769 | 5.1 |
| North bound | 310,202 | 1,129,135 | 18 | 769 | 4.7 |
| Totals | 452,082 | 1,689,561 | 19 | 769 | 4.9 |
| BETWEEN MEMPHIS AND NEW ORLEANS | | | | | |
| South bound | 221,237 | 506,196 | 11 | 455 | 5. |
| North bound | 163,711 | 444,167 | 13 | 455 | 5.9 |
| Totals | 384,948 | 950,363 | 12 | 455 | 5.4 |

ments. One important point of difference between the table of rail traffic and that of river traffic should be noted. The latter includes freight received and discharged at all landings, while the former includes only the freight carried between the important stations. The river statistics include the total of shipments and receipts both at the terminals and for intermediate points.

The average rate for the total volume of freight movement is a better test of the reasonableness or unreasonableness of rates than are the specific rates. Table XIII presents the average rates on the freight shipped in each direction and on the total in both directions between the most important towns and cities on the route. The rates south bound vary from 5 to 33 cents per hundred pounds, those north bound from 5 to 26 cents, and the averages for both directions from 5 to 26 cents per hundred pounds. From New Orleans, north bound, there is a large amount of high-class freight, consisting of bananas, oranges, lemons, limes, pineapples, and other tropical fruits; of domestic fruits and vegetables; and of imports. From Chicago and St. Louis the south-bound movement includes packing-house products and considerable high-class manufactures. In view of the class of freight moving in both directions it seems that the rates are at least reasonable, if not low; and they appear to be as low between Chicago and river points as between river points themselves. Indeed there are many factors other than river competition that affect the rate structure of the Mississippi Valley. Market competition and rail competition are as potent in reducing rates as water competition. And lake and rail competition between Chicago and the seaboard, in conjunction with the two factors just mentioned and river competition, have fixed rates in the Mississippi Valley at a very low figure.

The average charges per ton per mile vary from 4.5 mills to 8.8 mills on freight moving south bound; from 4.7 to 7.1, north bound; and from 4.9 to 6.8 on the total movement in both directions. The lowest charge is 4.5 mills on freight shipped from Chicago to New Orleans. The ton-mile charge from New Orleans to St. Louis and from Baton Rouge to Chicago is only 4.7 mills in both cases, and from St. Louis to Chicago it is only 4.8 mills. It is worth noting that the latter rate is less than the charge south bound between St. Louis and New Orleans, and that the average charge for both directions between Chicago and St. Louis is 5.1 mills, the same as the rate per ton-mile on shipments from St. Louis to New Orleans. Of course one would expect the lower rate for the longer distance, and on the river stretch where the channel is best; but the opposite is true. Therefore a waterway between Chicago and St. Louis must be more efficient than the Mississippi River to cause a reduction in the rates between Chicago and St. Louis. The total ton-mile charge between Chicago and New Orleans is only 5.3 mills, scarcely more than 4.9 mills, the charge between St. Louis and New Orleans. Between Memphis and New Orleans the charge is 5.4 mills, and between Memphis and St. Louis it is 6.6 mills. The haul is comparatively long between the cities shown, and this should cause the rates to be lower than the average. On the other hand, the freight movement between these important cities consists quite largely of tropical fruits, manufactures, and other high-grade freight, and this should cause the rates to be higher than the average. Very little coal, stone, and other extremely low-grade freight moves over the long distances between the cities.

### 20. *Comparison of Certain Ton-Mile Charges*

Certain other average charges per ton per mile are presented here that they may be compared with those given in the preceding table. Table XIV contains the charges per ton per mile between St. Louis and points on the Mississippi River below St. Louis as far as Vicksburg, Miss.

The charges vary for the several classes between the points given, from 45 mills to 4.8 mills, and are much higher than the rail charges tabulated above. No rates are made lower than Class A except between St. Louis and Memphis, and the lowest charge for that class is 9 mills.

Table XV shows certain ton-mile charges for comparison. The insurance charges are not included in the boat rates, and yet the rail rate of 5.15 mills in the Mississippi Valley, which virtually includes insurance for negligence, is not disparaged in comparison with even the lowest rate of any national waterway system, which does not include insurance. Moreover, the rail charge in the Mississippi Valley is lower than the rate on any national railway system.

### TABLE XIV

### TON-MILE CHARGES IN MILLS ON CLASS FREIGHT BETWEEN ST. LOUIS AND CERTAIN OTHER POINTS ON THE MISSISSIPPI*

| BETWEEN ST. LOUIS AND | DISTANCE (Miles) | CLASSES | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | A | B and C | D |
| Cairo, Ill. | 176 | 28 | 23 | 20 | 16 | 11 | 11 | 10 | .. | ... | ... |
| Columbus, Ky. | 197 | 30 | 23 | 18 | 14 | 12 | .. | .. | 10 | ... | ... |
| Hickman, Ky. | 214 | 28 | 23 | 21 | 17 | 14 | 13 | .. | 9 | ... | ... |
| New Madrid, Mo. | 252 | 32 | 23 | 21 | 17 | 14 | .. | .. | 15 | ... | ... |
| Tiptonville, Tenn. | 268 | 45 | 37 | 34 | 30 | 24 | 18 | .. | 17 | ... | ... |
| Gayoso, Mo. | 291 | 33 | 26 | 23 | 19 | 16 | .. | .. | 17 | ... | ... |
| Barfield, Ark. | 318 | 30 | 24 | 21 | 17 | 14 | .. | .. | 15 | ... | ... |
| Luxora and Osceola, Ark. | 341 | 31 | 24 | 22 | 18 | 14 | .. | .. | 14 | ... | ... |
| Memphis, Tenn. | 421 | 23 | 18 | 16 | 13 | 11 | 09 | 06 | .. | 5.2 | 4.8 |
| Helena, Ark. | 511 | 23 | 20 | 18 | 14 | 11 | 10 | 08 | .. | ... | ... |
| Vicksburg, Miss. | 830 | 14 | 12 | 11 | 08 | 07 | 06 | 05 | .. | ... | ... |

* *Annual Report of the Chief of Engineers*, 1910, p. 1770.

### TABLE XV

### CHARGES PER TON PER MILE ON FREIGHT CARRIED BY RAIL IN THE MISSISSIPPI VALLEY COMPARED WITH CERTAIN OTHER TON-MILE CHARGES

| Localities and Routes | Year | Mills |
|---|---|---|
| Rail carriers between Chicago and New Orleans | 1909* | 5.3 |
| Rail carriers between all points in Mississippi Valley named on the map (p. 669), except the cities in parentheses | 1909* | 5.15 |
| Rail carriers between Chicago and St. Louis | 1909* | 5.14 |
| Entire system of the Illinois Central Railroad | 1909† | 6.46 |
| Railways of the United States | 1908† | 7.54 |
| Railways of the United States | 1898 | 7.53 |
| Railways of Russia (lowest rail rate in Europe) | 1905 | 9.61 |
| National railways of Prussia | 1899 | 12.78 |
| Railways of France | 1905 | 14.00 |
| Waterways of Germany | 1905 | 5.00 |
| Waterways of France | 1905 | 6.00 |

* Calendar year. This is the average charge for the freight movement shown in Table XIII.
† Fiscal year.

Table XVI shows the average charge per ton per mile on certain commodities carried on the Rhine. Table XVII exhibits the ton-mile charges on certain commodities carried by the Illinois Central Railroad.

### TABLE XVI*

### TON-MILE CHARGES FOR CERTAIN COMMODITIES CARRIED ON THE RHINE FOR CERTAIN DISTANCES

| Commodities | Points Connected | Miles | Rate in Cents | Rate in Mills |
|---|---|---|---|---|
| Cereals........................ | Rotterdam to Manheim | 337 | 75 | 2.08 |
| Coal.......................... | Duisburg to Rotterdam | 203 | 63 | 2.88 |
| Coal.......................... | Duisburg to Manheim | 135 | 25 | 1.88 |
| Articles half manufactured..... | Ludwigshafen to Rotterdam | 342 | 39 | 1.10 |

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* C. Colson, state councilor of France, and Louis Marlio, engineer of bridges and roads, Report No. 2, *On the Question of Railways and Waterways;* for the Railway Congress, 1909, advance sheets, p. 1138.

### TABLE XVII

### TON-MILE CHARGES ON GRAIN AND COAL CARRIED BY THE ILLINOIS CENTRAL RAILROAD

(The ton-mile charge was computed from the actual weight and charges for the month in which the largest shipment of each commodity was made except in the case of coal. This charge was computed from the published rate.)

| COMMODITIES | POINT OF RECEIPT AND DISCHARGE | TON-MILE CHARGE | |
|---|---|---|---|
| | | Mills* | Mills† |
| Corn......... | East St. Louis to New Orleans, Dec., 1909 | 2.92 | 1.76 |
| Wheat....... | East St. Louis to New Orleans, Sept., 1909 | 2.83 | 1.71 |
| Oats......... | East St. Louis to New Orleans, Sept., 1909 | 2.67 | 1.46 |
| Corn......... | Argenta, Ill. (the largest shipping point not on a river), to New Orleans.................. | 2.89 | .... |
| Corn......... | Cisco, Ill. (the second shipping point in Central Ill.), to New Orleans | 2.87 | .... |
| Coal......... | Carbondale, Ill., to Chicago | 2.69 | .... |

* Based on rail distance.
† Based on river distance.

By comparing the rates in the two tables it may be seen that the rail rates in the Mississippi Valley are almost as low as the rates on the same commodities shipped via the Rhine. Here again no account is taken of insurance charges, which are largely to be reckoned a legitimate part of the river cost, when comparison is made with rail rates.

# CHAPTER VII

## BOAT AND RAIL RATES, INSURANCE, AND TERMINAL CHARGES

The construction of a waterway from the lakes to the Gulf is commonly advocated on two grounds, namely: (1) that the cost of freight shipment by the waterway would be less than the present rail rates, and (2) that the water competition thus established would reduce the rail rates and serve as a means of rate regulation. It is widely believed that the rates would be reduced sufficiently to justify the expense of constructing the waterway.

The present boat and rail rates,[1] insurance, and terminal charges are presented here in order that a comparison may be made between the cost of shipment by rail and that by river. Later an attempt is made to show why the shipper chooses either the rail or the river route, and to present the conditions that affect freight movement so clearly that the reader may arrive at his own conclusions as to the benefits to be derived from an improved channel. The boat rates applicable to class freight are first presented for the several stretches of the river, including rates at all river landings. Then a comparison of boat with rail rates between the more important competitive points is made.

### 21. *Boat Rates on Classes between Peoria and St. Louis*

Table XVIII shows the class rates between St. Louis and points on the Mississippi and Illinois rivers as far as Peoria, Ill.[2]

The table shows that higher rates are in effect between St. Louis and points located between St. Louis and Peoria, than between St. Louis and Peoria. That is, higher rates are charged for a short haul than for a longer one over the same route. The points at which the higher rates apply are those at which the boat lines meet little or no rail competition. Calhoun County, situated between the Illinois and Mississippi rivers, above Grafton, is not served by a single railway. It would seem that this narrow county served on both borders by waterways would be exceptionally favored by low freight rates. The shippers of this county, however, pay more for shipping freight to and from St. Louis, a distance of from 40 to 70 miles, than the shippers at Peoria pay for a distance of 233 miles via the same river. It would seem that if river shipping were prohibited, it might be a boon to this county. For if there were no water competition, steam or electric railways would probably be built. If this were done, the Illinois distance rates that would apply between St. Louis and the most distant point in the county are shown in the following scale in comparison with the present boat rates. The Illinois distance rates are still less

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[1] The boat rates tabulated are as complete rates as the writer could obtain. The chief sources of authority are the tariffs of the boat lines operating on the several sections of the route and the river tariffs of the Railroad Commission of Louisiana. Appendix X of the *Annual Report of the Chief of Engineers* for 1910 was an aid in the preparation of certain of the tables. The rail rates were obtained from the Illinois Central Railroad Company.

[2] They were obtained from a rate sheet furnished by Mr. H. W. Leyhe of the Eagle Packet Company, and were in effect in April, 1911, subject to change without notice. In the rate tables fractions less than ½ cent are disregarded, and those of ½ cent and more are written as an additional unit. The distances were taken from a passenger folder of the company.

TABLE XVIII

CLASS RATES BETWEEN ST. LOUIS AND POINTS ON THE ILLINOIS RIVER VIA THE MISSISSIPPI AND ILLINOIS RIVERS

| BETWEEN ST. LOUIS, MO., AND | RATES IN CENTS PER HUNDRED POUNDS* | | | | | DISTANCE (Miles) |
|---|---|---|---|---|---|---|
| | Classes | | | | | |
| | 1 | 2 | 3 | 4 | 5 | |
| Alton, Ill.† | 18 | 15 | 13 | 10 | 8 | 23 |
| Grafton and Elsah, Ill.‡ | 25 | 20 | 15 | 13 | 10 | 40 |
| Points between Beardstown and Grafton§ | 35 | 28 | 20 | 15 | 13 | 42–132 |
| Pittsfield and Griggsville, Ill.¶ | 40 | 30 | 25 | 20 | 18 | 100–110 |
| Perry, Ill.¶ | 50 | 35 | 30 | 25 | 20 | 140 |
| Peoria, Pekin, Havana, and Beardstown, Ill.‡ | 30 | 25 | 20 | 15 | 13 | 181–233 |

* Governed by the Illinois Classification. No rates are published for the classes 6–10.

† Minimum charge 25 cents.

‡ Minimum charge 35 cents.

§ Minimum charge 50 cents.

¶ Minimum charge 50 cents. These points are not immediately on the river.

for the shorter distances, hence the differentials would be still greater for the nearer points.

| | RATES IN CENTS PER HUNDRED POUNDS | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Classes | | | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Boat rates | 35 | 28 | 20 | 15 | 13 | * | ... | ... | ... | ... |
| Illinois distance rates for 70 miles | 26.3 | 21.8 | 18.4 | 12.8 | 10.2 | 9.9 | 9.5 | 7.7 | 6.1 | 5.5 |
| Differentials | 8.7 | 6.2 | 1.6 | 2.2 | 2.8 | ... | ... | ... | ... | ... |

* No class rates published by the boat lines for classes 6–10.

### 22. *Boat Rates on Classes between St. Louis and New Orleans*

Table XIX shows the class rates on the section of the Mississippi River between St. Louis, Mo., and New Orleans, La. The rates are those of the Lee Line except where reference is made to the Mississippi Valley Transportation Company. Two features of the rate structure on the Mississippi are manifest in the table. (1) The same rates apply over stretches of the river. The rate is the same from St. Louis to the first regular landing as from St. Louis to Cairo. The same rate is also applied on shipments moving from one landing to another anywhere between St. Louis and Cairo. There is no advancing scale based on distance. (2) The charge is frequently more for a short haul than for a longer one. For example, the rates are higher between St. Louis and the first outside landing below than between St. Louis and Cairo, higher from St. Louis to points above Memphis than to Memphis. In general the rates for short distances between non-rail points are as high as for longer distances between rail points, and frequently they are higher. In contrast with the structure of the boat rates as presented above, the railways usually relate their rates more closely to distance, and they are not allowed to charge more for a short than for a longer haul over the same route except by special permission from the commission. The rail rates between St. Louis

## TABLE XIX

### Class Rates on the Section of the Mississippi River between St. Louis and Vicksburg

| Between St. Louis, Mo., and Points Named Below, Except as Otherwise Noted | Rates in Cents per Hundred Pounds* | | | | | | | | | | | | Per Bbl. | Distance (Miles) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Classes | | | | | | | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | | | |
| Landings below St. Louis, not below Cairo. (1) Regular landings........... | 25 | 20 | 18 | 14 | 10 | 10 | 9 | 8 | 7 | 6 | .. | .. | .. | 176 |
| (2) Way landings... | 30 | 24 | 22 | 17 | 12 | 12 | 11 | 10 | 8 | 7 | .. | .. | .. | ....... |
| | 1 | 2 | 3 | 4 | 5 | 6 | A | B | C | D | E | H | F | |
| Regular landings below Cairo, not below Columbus, Ky.† .... | 30 | 23 | 18 | 14 | 14 | 12 | 10 | ‡ | .. | .. | .. | .. | .. | 197 |
| Regular landings below Columbus, not below Hickman, Ky. | 30 | 25 | 23 | 19 | 15 | 14 | 10 | .. | .. | .. | .. | .. | .. | 214 |
| Regular landings below Hickman, not below New Madrid, Mo.... | 40 | 29 | 27 | 22 | 18 | § | 19 | .. | .. | .. | .. | .. | .. | 252 |
| Regular landings below New Madrid, not below Tiptonville, Tenn. | 60 | 50 | 45 | 40 | 32 | 25 | 23 | .. | .. | .. | .. | .. | .. | 268 |
| Gayoso, Caruthersville, Mo., Tylor, Barfield, Ark....... | 48 | 38 | 33 | 27 | 23 | § | 24 | .. | .. | .. | .. | .. | .. | 291–318 |
| Regular landings below Barfield, not below Luxora and Osceola, Ark............... | 53 | 41 | 38 | 30 | 23 | § | 24 | .. | .. | .. | .. | .. | .. | 341 |
| Regular landings below Osceola, not below Memphis, Tenn..... | 50 | 38 | 33 | 27 | 23 | 19 | 12 | 11 | 11 | 10 | 16 | 23 | 28 | 421 |
| From St. Louis to Memphis only.... | 50 | 40 | 35 | 25 | 20 | 18 | 10 | 19 | 10 | 8 | 15 | 32 | 20 | 421 |
| From Memphis to St. Louis.............. | 45 | 35 | 35 | 25 | 20 | 18 | 10 | 12 | 10 | 10 | 14 | 12 | 20 | 421 |
| All way landings between Cairo, Ill., and Memphis, Tenn..... | 60 | 50 | 45 | 40 | 35 | 30 | 25 | .. | .. | .. | .. | .. | .. | 176–421 |
| Helena, Arkansas City, Ark., Friars Point, Greenville, Vicksburg, Miss., Lake Providence, La.......... | 60 | 50 | 45 | 35 | 30 | 25 | 20 | .. | .. | .. | .. | .. | .. | 511–830 |
| From St. Louis to Helena only‖....... | 60 | 50 | 45 | 35 | 30 | 25 | 18 | 20 | 18 | 15 | 20 | 40 | 35 | 511–830 |

TABLE XIX—*Continued*

| BETWEEN ST. LOUIS, MO., AND POINTS NAMED BELOW, EXCEPT AS OTHERWISE NOTED | RATES IN CENTS PER HUNDRED POUNDS* | | | | | | | | | | | | PER BBL. | DISTANCE (Miles) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Classes | | | | | | | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 | A | B | C | D | E | H | F | |
| Points between Helena, Ark., and Vicksburg, Miss. | 90 | 75 | 60 | 50 | 45 | 40 | 30 | .. | .. | .. | .. | .. | .. | 511–830 |
| From St. Louis to New Orleans and other important points only‖ | 60 | 50 | 45 | 35 | 30 | 25 | 18 | 21 | 18 | 15 | 20 | 40 | 35 | |
| From New Orleans to St. Louis‖ | 60 | 50 | 45 | 40 | 30 | 22 | 18 | 18 | 18 | 15 | 18 | 41 | 30 | |
| **BETWEEN CAIRO, ILL., AND** | | | | | | | | | | | | | | |
| Regular landings below Cairo, not below Memphis, Tenn. | 38 | 29 | 27 | 20 | 18 | 15 | 10 | 8 | 8 | 8 | 10 | 15 | 25 | 245 |
| From Cairo to Memphis only‖ | 40 | 30 | 26 | 20 | 16 | 13 | 7 | 15 | 6 | 6 | 10 | 22 | 15 | |
| Helena, Arkansas City, Friars Point, Greenville, Vicksburg, Lake Providence | 60 | 50 | 45 | 35 | 30 | 25 | 20 | .. | .. | .. | .. | .. | .. | 335–654 |
| From Cairo to Helena only‖ | 50 | 40 | 35 | 26 | 23 | 20 | 15 | 22 | 15 | 10 | 16 | 35 | 25 | |
| Other points between Helena, Ark., and Vicksburg, Miss. | 90 | 75 | 60 | 50 | 45 | 40 | 30 | .. | .. | .. | .. | .. | .. | 335–654 |
| From Cairo to New Orleans and other important points only‖ | 50 | 40 | 35 | 26 | 23 | 20 | 15 | 19 | 15 | 10 | 16 | 35 | 25 | |
| **BETWEEN MEMPHIS, TENN., AND** | | | | | | | | | | | | | | |
| Regular landings below Memphis, not below Vicksburg, Miss. | 30 | 28 | 23 | 18 | 15 | 12 | 9 | 12 | 11 | 9 | 12 | 13 | 20¶ | 409 |
| From Memphis to Helena only‖ | 30 | 25 | 20 | 18 | 13 | 11 | 8 | 12 | 9 | 8 | 10 | 12 | 12 | 409 |
| From Memphis to New Orleans and rate points‖ | 30 | 25 | 20 | 18 | 13 | 11 | 8 | 12 | 9 | 8 | 10 | 12 | 18¶ | 409 |

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* Governed by the Illinois Classification.

† Between St. Louis and points below Cairo on the east bank, the classes are governed by the Southern Classification; between St. Louis and points on the west bank, by the Western Classification. Rates to and from outside landings are 20 per cent higher than to and from regular landings. A higher rate is charged for a short haul than for a longer one.

‡ The boat companies do not classify freight lower than class A except shipments between the larger towns and cities.

§ There is no sixth class in the Western Classification, which applies at these points.

‖ Rates of the Mississippi Valley Transportation Company apply at Memphis and other important points only. The points that take New Orleans rates are: Greenville, Vicksburg, Natchez, Baton Rouge, Donaldsonville, and Plaquemine. Tariffs of Mississippi Valley Transportation Company, Nos. 1–6, effective June 15, 1911.

¶ Only 15 cents in carload shipments by rail, 12 by boat.

and Cairo for example are governed by the Illinois distance tariff. The rates for 10 miles are:

Rates in Cents per Hundred Pounds*

| Classes | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Rates | 12 | 11 | 9 | 7 | 5 | 5 | 5 | 4 | 4 | 3 |

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* The fractions less than one-half are not shown, and those of one-half and more are shown as an additional cent.

The rates for longer distances increase until the scale for 150 miles is reached for shipments between St. Louis and Cairo. From this

### TABLE XX

Boat Rates Applying on Classes via the Mississippi River on the Stretch between New Orleans and the Northern Boundary of Louisiana*

| Between New Orleans and Intermediate Landings, and | Rates in Cents per Hundred Pounds | | | | | | | | | | Distance (Miles) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Less than Carloads | | | | | Carloads | | | | | |
| | Classes | | | | | Classes | | | | | |
| | 1 | 2 | 3 | 4 | 5 | A | B | C | D | E | |
| The more important landings between New Orleans and Donaldsonville, La. | 30 | 25 | 23 | 15 | 20 | 20 | 15 | 12 | 10 | 10 | 1–82 |
| The less important landings between New Orleans and Donaldsonville, La. | 30 | 26 | 23 | 20 | 15 | 15 | 12 | 12 | 10 | 8 | 1–82 |
| Landings between Donaldsonville and Baton Rouge and Port Allen, and Bayou Sara proper | 30 | 26 | 23 | 20 | 15 | 15 | 12 | 12 | 10 | 8 | 82–175 |
| Poplar Grove, Lobdells, Devalls, Hills, and False River Railroad† | 45 | 40 | 35 | 30 | 25 | 25 | 18 | 16 | 14 | 12 | 140–175 |
| Landings above Bayou Sara but not above the northern boundary of Louisiana, and including Natchez and Vicksburg, Miss. | 50 | 45 | 35 | 30 | 25 | 25 | 20 | 18 | 16 | 15 | 175–476 |

| | 1 | 2 | 3 | 4 | 5 | 6 | A | B | C | D | E | H | F |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| From Memphis to New Orleans‡ | 30 | 25 | 20 | 18 | 13 | 11 | 8 | 12 | 9 | 8 | 10 | 12 | 18§ |
| From New Orleans to Memphis‡ | 30 | 25 | 20 | 18 | 13 | 11 | 8 | 10 | 9 | 8 | 10 | 12 | 18§ |

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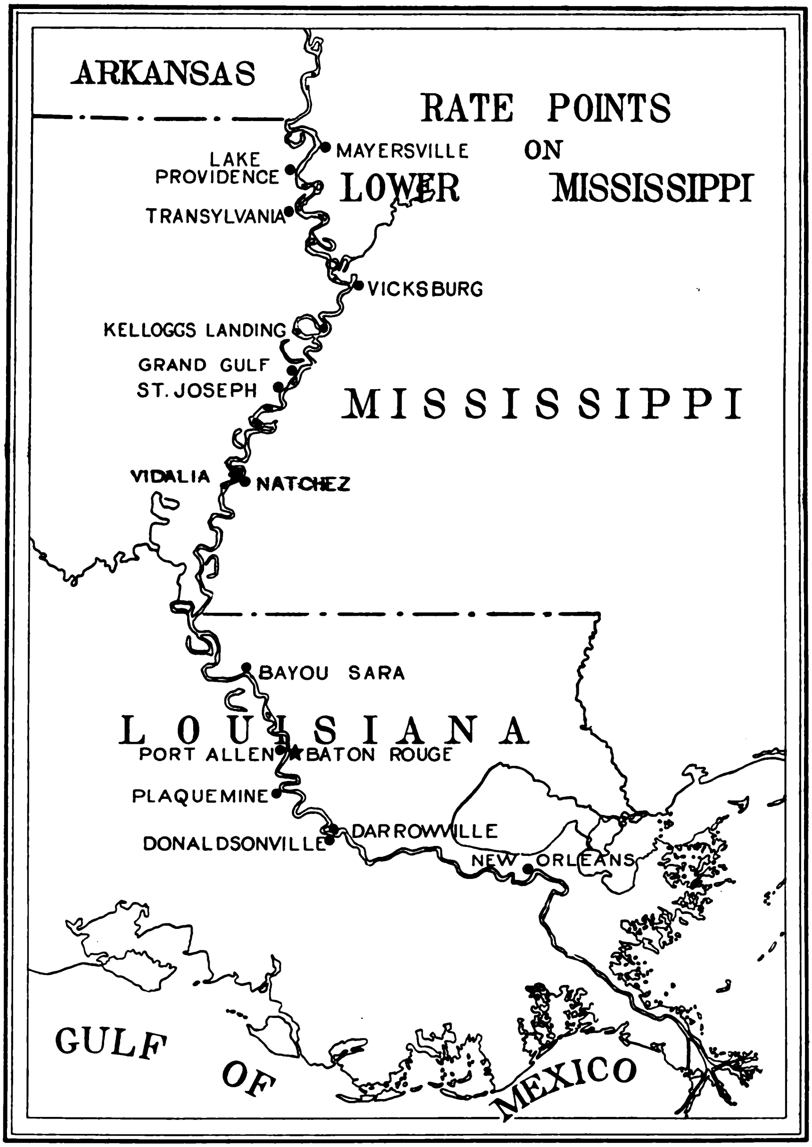
* Railroad Commission of Louisiana, Authorities Nos. 5148, 3178, 3180, and 3421. Governed by the Western Classification. For location of landings named in the table see map on p. 64. Where commodity rates are higher, they are applied. No freight bill made for less than 25 cents, no landing made for less than 50 cents. The Railroad Commission of Louisiana has authority over intrastate shipments only, but the boat lines apply the rates at landings on the Mississippi side as far as the northern boundary of Louisiana.

† These landings are between Baton Rouge and Bayou Sara.

‡ Governed by Southern Classification. Rates are published by Mississippi Valley Transportation Company.

§ Only 12 cents in carloads.

it is seen that the shipper located on a railway between St. Louis and Cairo obtains lower freight rates than the shipper at a Mississippi landing. This too without the aid of water competition. The



people of the entire state of Illinois are paying no more than the rates based on the distance table made by the Railroad and Warehouse Commission.

Table XX presents the boat rates approved by the Railroad Commission of Louisiana applying on classes via the Mississippi River on the stretch between New Orleans and the northern border of Louisiana. The structure is similar to that on the section of the river above given in Table XIX. There is a rising scale of rates for the three stretches of this section of the river, but no variation for short distances. There is also a greater charge for a short haul than for a longer one. For example, the rates are higher at several points between Baton Rouge and Bayou Sara than at the latter point, which is above the landings referred to. The first-class rate between New Orleans and Bayou Sara is only 30 cents; while between New Orleans and certain points below Bayou Sara, the rate is 45 cents.

### 23. *Insurance Rates on Cargo and on Hulls*

As freight rates have decreased the relative importance of insurance and terminal charges has increased. Drayage at both termini of a route is not infrequently as much as the boat or rail rate on low-grade freight. Drayage may be necessary in shipping via a waterway or via a railway. In some cases the cost of drayage is more by one or the other of these routes, while in others it is the same by each route. Insurance, however, is usually resorted to only in river shipping. Insurance and drayage rates are presented here as an aid in comparing the total costs of freight movement, by river with that by rail.

In a comparison of rail and river rates the insurance rates on cargo should be added to the boat rates. This is true because railways usually pay for loss and damage to freight in their care, while boat lines do not. The following are the insurance rates on river cargo in effect in 1910. The rates given are those on $100 in value of cargo carried by "good steamboats and barges to and from New Orleans and the following points."[1]

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[1] Tariff of river premiums adopted by the Board of Underwriters of New Orleans in 1903. Still in effect in 1910.

## INSURANCE RATES PER $100 VALUE APPLYING ON CARGO SHIPPED ON THE ILLINOIS AND MISSISSIPPI RIVERS

### (1) BETWEEN NEW ORLEANS AND POINTS:

| | |
|---|---|
| Not above Baton Rouge | $0.20 |
| Above Baton Rouge, and not above Bayou Sara | .25 |
| Above Bayou Sara, and not above Grand Gulf | .35 |
| Above Grand Gulf, and not above Vicksburg | .40 |
| Above Vicksburg, and not above Greenville | .45 |
| Above Greenville, and not above Memphis | .50 |
| Above Memphis, and not above Cairo | .65 |
| Above Cairo, and not above St. Louis | .80 |
| Above St. Louis, and not above Keokuk | 1.00 |
| Above Keokuk, and not above Davenport | 1.20 |
| Above Davenport, and not above Cassville | 1.30 |
| Above Cassville, and not above St. Paul | 1.50 |
| Above St. Louis, and not above Beardstown, Ill. | .95 |
| Above Beardstown, and not above La Salle, Ill. | 1.10 |

### (2) BETWEEN THE FOLLOWING INTERMEDIATE POINTS:

| | |
|---|---|
| St. Louis and Cairo | $0.40 |
| St. Louis and Memphis | .50 |
| St. Louis and Vicksburg | .70 |
| St. Louis and Natchez | .75 |
| Peoria and St. Louis | .37½ |
| Cairo and Memphis | .40 |
| Cairo and Vicksburg | .50 |
| Cairo and Natchez | .55 |
| Cincinnati and Vicksburg | .80 |
| Cincinnati and Natchez | .85 |
| Louisville and Vicksburg | .75 |
| Louisville and Natchez | .80 |
| Evansville and Vicksburg | .60 |
| Evansville and Natchez | .65 |
| Memphis and Vicksburg | .40 |
| Greenville and Vicksburg | .20 |
| Greenville and Natchez | .30 |
| Natchez and Vicksburg | .20 |
| Grand Gulf and Natchez | .20 |
| Bayou Sara and Natchez | .20 |
| Plaquemine and Natchez | .20 |

Special rates are charged on cotton seed as follows:

| | |
|---|---|
| By model barges from any point to New Orleans the rate is | $0.85 |
| By scow barges from any point on the Mississippi to New Orleans | 1.50 |
| By scow barges from any point on the tributaries of the Mississippi to New Orleans | 2.00 |

Harbor risks on cargo in model barges holding underwriters' inspectors' certificate are taken at a rate of $2.50 per $100 in value. Hull risks on approved vessels are taken at from 6 to 16 per cent per annum on the value of the vessel. The Lee Line pays 13 per cent on its fleet. This is probably near an average insurance rate for approved wooden hulls on the Mississippi River.

TABLE XXI

INSURANCE RATES IN CENTS PER HUNDRED POUNDS ON COMMODITIES VALUED AT FROM $1 TO $150 PER HUNDRED POUNDS FOR A VARYING SCALE OF RATES PER $100 IN VALUE

| When Rate per $100 in Value is: | Insurance Rates in Cents per Hundred Pounds on Commodities Valued at from $1 to $150 per Hundred Pounds | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $1 | $5 | $10 | $20 | $30 | $40 | $50 | $60 | $70 | $80 | $100 | $120 | $150 |
| Cents | | | | | | | | | | | | | |
| 20 | 0.2 | 1 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 20 | 24 | 30 |
| 30 | .3 | 1.5 | 3 | 6 | 9 | 12 | 15 | 18 | 21 | 24 | 30 | 36 | 45 |
| 40 | .4 | 2 | 4 | 8 | 12 | 16 | 20 | 24 | 28 | 32 | 40 | 48 | 60 |
| 50 | .5 | 2.5 | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 50 | 60 | 75 |
| 60 | .6 | 3 | 6 | 12 | 18 | 24 | 30 | 36 | 42 | 48 | 60 | 72 | 90 |
| 70 | .7 | 3.5 | 7 | 14 | 21 | 28 | 35 | 42 | 49 | 56 | 70 | 84 | 105 |
| 80 | .8 | 4 | 8 | 16 | 24 | 32 | 40 | 48 | 56 | 64 | 80 | 96 | 120 |
| 100 | 1 | 5 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 100 | 124 | 150 |
| 120 | 1.2 | 6 | 12 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 120 | 144 | 180 |
| 150 | 1.5 | 7.5 | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 150 | 180 | 225 |

The insurance rates per hundred pounds on commodities valued at from $1 to $150 per hundred pounds, for the scale of rates per $100 in value given, are shown in Table XXI. This is given as an aid in estimating the insurance per hundred pounds on the commodities shipped in largest amounts along the route. The insurance rate on wheat at $1 a bushel shipped between St. Louis and New Orleans according to the scale above is eight-tenths of a cent per bushel or approximately 1⅓ cents per hundred pounds. The rate on household goods valued at $10 a hundred is 8 cents per hundred pounds. On shoes valued at $100 per hundred pounds the rate is 80 cents per hundred pounds, and on clothing valued at $150 per hundred pounds, the rate is $1.20. There is a large amount of freight on which the insurance alone prevents its shipment by river. A large part of the common stock of dry goods, for example, is valued at $50 or more per hundred pounds, and the insurance between St. Louis and New Orleans at this value is 40 cents. The finer lingeries and silks are valued at as much as $1,000 per hundred pounds, on which the insurance rate is $8 per hundred pounds. The rail rate on silk of this value is only $2.70 from New Orleans to St. Louis, and on the cheaper grades of silk the rate is only 90 cents.

### 24. *Drayage Rates*

A determining factor in the choice of a freight carrier is often the cost of drayage. The following outline of the charges for drayage at St. Louis and Chicago show, roughly, the rates in those cities, and will aid in estimating the cost at other towns and cities on the route. The rates are those that were in effect in 1910–11:

A. Drayage Rates in St. Louis, Mo.,[*] in Cents per Hundred Pounds

| | |
|---|---|
| I. For a radius of one mile from the wharf | |
| 1. Less than carload lots | |
| *a*) Ordinary freight | 3 |
| *b*) Bulky[†] freight | 5 to 15 |
| 2. Carload lots | |
| *a*) Ordinary freight | 2.8 |
| *b*) Bulky freight | 4.7 to 14.1 |
| II. City deliveries other than in the down-town district[‡] | |
| 1. Less than carload lots | |
| *a*) Ordinary freight | 5.4 |
| *b*) Bulky freight | 9 to 27 |
| 2. Carload lots | |
| *a*) Ordinary freight | 5.1 |
| *b*) Bulky freight | 8.5 to 25 |

[*] Information obtained from St. Louis Transfer Company, St. Louis, Mo. The rates at Memphis are almost the same as those at St. Louis.

[†] "Bulky" freight is freight that requires a large amount of space for its weight.

[‡] At least 90 per cent of the river freight goes to the down-town district, probably more than 95 per cent.

B. Drayage Rates in Chicago, Ill., in Cents per Hundred Pounds

| | |
|---|---|
| I. Within the depot district§ and for a haul of 1.5 miles in other parts of the city | |
| 1. Coal and rolling freight¶ | 2.5 |
| 2. General freight | 3 |
| 3. Light and bulky freight | 5 to 15 |
| 4. Freight especially costly to cart | Per Load |
| II. For each additional mile or fraction thereof | 0.5 |

§ The depot district is bounded by Fifteenth Street on the south, Halsted Street on the west, Indiana Street on the north, and Lake Michigan on the east.

¶ Freight in barrels, iron drums, etc.

The rates in the two cities are almost the same within the business sections. But for longer hauls the rates are graded in Chicago, while in St. Louis they are 80 per cent more for all distances greater than those within the business section of the city. The rates at Memphis are very similar to those at St. Louis. At the several cities there are special rates. At Memphis, for example, the rate on cotton is 25 cents per bale; at Greenville and Vicksburg it is only 15 cents.

### 25. *Class Rates by Rail Compared with Those by River*

After this presentation of the boat rates on classes, the insurance, and the drayage charges, it is now necessary to tabulate in comparison the rail rates applying between the more important competitive points. The rail rates taken are the local rates, not the proportional rates, on shipments from beyond. For example, the rate on wheat from a large part of central Illinois to New Orleans is 18 cents per hundred pounds, but the proportion south of St. Louis is only 11 cents. In Table XXII the local rate of 18 cents is shown, although the wheat moves on the 11-cent proportion. Though there are no river rates for comparison, it is perhaps worth while to present the rail rates between Chicago and river points.

Table XXIII shows the class rates by rail in comparison with those by river. Between Peoria and points below St. Louis there are no through boat lines, but the combination of the locals above St. Louis with those below are compared with the through rail rates. The boat rates between points from St. Louis to New Orleans, inclusive, are those published by the Mississippi Valley

Transportation Company[1] in June, 1911. The tariffs of this company govern only the through movement between the larger rail points, and were made lower than the rail rates for the purpose of attracting the competitive business. For seven years there had been no through packet lines, no through rates, and no through packet movement. The combination of the locals usually being higher than the rail rates, there was little through movement. But during 1911, the Mississippi Valley Transportation Company carried more than 11,000 tons of freight at the boat rates shown in Table XXIII. These rates are materially lower than the rail rates as shown by the differentials. Whether they are low enough to attract sufficient freight to develop an important boat business, and high enough to be remunerative are questions that the experiment alone, perhaps, can answer. The old company found that it could not attract the business in amounts large enough at rates sufficiently high to make the boat line profitable. And the new

### TABLE XXII

RAIL RATES ON CLASSES BETWEEN CHICAGO AND RIVER POINTS

| BETWEEN CHICAGO, ILL., AND | RATES IN CENTS PER HUNDRED POUNDS | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Classes (Illinois Classification) | | | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Peoria, Ill. | 37 | 29 | 22 | 18 | 15 | 14 | 13 | 11 | 9 | 8 |
| St. Louis, Mo. | 43 | 35 | 28 | 22 | 18 | 17 | 15 | 14 | 11 | 10 |
| Cairo, Ill. | 47 | 38 | 31 | 24 | 19 | 18 | 17 | 15 | 12 | 11 |

| | Classes (Southern Classification) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | A | B | C | D | E | H | F |
| Memphis, Tenn. | 85 | 65 | 55 | 43 | 37 | 31 | 21 | 32* | 21 | 18† | 25‡ | 50 | 42 |
| Greenville, Miss.<br>Vicksburg, Miss.<br>Natchez, Miss.<br>Baton Rouge, La.<br>New Orleans, La. | 110 | 90 | 75 | 58 | 47 | 41 | 31§ | 44 | 31 | 26 | 33 | 65 | 57 |

* South bound only, north-bound rate 31 cents.

† South bound only, north-bound rate 21 cents.

‡ South bound only, north-bound rate 23 cents.

§ From points other than New Orleans the north-bound rate is 34 cents.

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[1] Tariffs Nos. 1–6.

line is in the process of reorganization (July, 1912), which indicates that the business of last season was not remunerative.

## TABLE XXIII

### Comparison of Class Rates by Rail with Those by River

| Between Peoria, Ill., and | | Rates in Cents per Hundred Pounds | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Classes (Illinois Classification) | | | | | | | | | |
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| St. Louis, Mo..... | Rail...... | 37 | 29 | 23 | 18 | 15 | 14 | 13 | 11 | 9 | 8 |
| | Boat ..... | 30 | 25 | 20 | 15 | 13 | .. | .. | .. | .. | .. |
| | Differential | 7 | 4 | 3 | 3 | 2 | .. | .. | .. | .. | .. |
| Cairo, Ill......... | Rail...... | 44 | 36 | 28 | 22 | 18 | 17 | 15 | 14 | 11 | 10 |
| | Boat†..... | 55 | 45 | 38 | 29 | 23 | .. | .. | .. | .. | .. |
| | Differential | 11* | 9* | 10* | 7* | 5* | .. | .. | .. | .. | .. |

| From Peoria to | | Classes (Southern Classification) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | A | B | C | D | E | H | F |
| Memphis, Tenn... | Rail...... | 79 | 61 | 54 | 41 | 35 | 30 | 19 | 30 | 18 | 15 | 24 | 48 | 36 |
| | Boat†..... | 80 | 65 | 55 | 40 | 33 | ‡ | .. | .. | .. | .. | .. | .. | .. |
| | Differential | 1* | 4* | 1* | 1 | 2 | .. | .. | .. | .. | .. | .. | .. | .. |
| Greenville, Miss...<br>Vicksburg, Miss...<br>Natchez, Miss. ...<br>Baton Rouge, La..<br>New Orleans, La... | Rail...... | 104 | 86 | 74 | 56 | 45 | 40 | 29 | 42 | 28 | 23 | 32 | 63 | 51 |
| | Boat†..... | 90 | 75 | 65 | 50 | 43 | ‡ | .. | .. | .. | .. | .. | .. | .. |
| | Differential | 14 | 11 | 9 | 6 | 2 | .. | .. | .. | .. | .. | .. | .. | .. |

| From St. Louis to | | Classes (Illinois Classification) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Cairo, Ill......... | Rail...... | 36 | 29 | 22 | 18 | 14 | 14 | 13 | 11 | 8 | 8 |
| | Boat ..... | 25 | 20 | 18 | 14 | 10 | 10 | 9 | 8 | 7 | 6 |
| | Differential | 11 | 9 | 4 | 4 | 4 | 4 | 4 | 3 | 1 | 2 |

| | | Classes (Southern Classification) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | A | B | C | D | E | H | F |
| Memphis, Tenn... | Rail...... | 65 | 50 | 45 | 35 | 30 | 25 | 15 | 26 | 15 | 12 | 20 | 42 | 30 |
| | Boat ..... | 50 | 40 | 35 | 25 | 20 | 18 | 10 | 19 | 10 | 18 | 15 | 32 | 20 |
| | Differential | 15 | 10 | 10 | 10 | 10 | 7 | 5 | 7 | 5 | 6* | 5 | 10 | 10 |
| Greenville, Miss...<br>Vicksburg, Miss...<br>Natchez, Miss....<br>Baton Rouge, La..<br>New Orleans, La.. | Rail...... | 90 | 75 | 65 | 50 | 40 | 35 | 25 | 38 | 25 | 20 | 18 | 57 | 45 |
| | Boat ..... | 60 | 50 | 45 | 35 | 30 | 25 | 18 | 21 | 18 | 15 | 20 | 40 | 35 |
| | Differential | 30 | 25 | 20 | 15 | 10 | 10 | 7 | 17 | 7 | 5 | 2* | 17 | 10 |

TABLE XXIII—*Continued*

| FROM CAIRO TO | | RATES IN CENTS PER HUNDRED POUNDS | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Classes (Southern Classification) | | | | | | | | | | | | |
| | | 1 | 2 | 3 | 4 | 5 | 6 | A | B | C | D | E | H | F |
| Memphis, Tenn. | Rail | 50 | 38 | 35 | 27 | 23 | 19 | 11 | 21 | 10 | 9 | 15 | 32 | 20 |
| | Boat | 40 | 30 | 26 | 20 | 16 | 13 | 7 | 15 | 6 | 6 | 10 | 22 | 15 |
| | Differential | 10 | 8 | 9 | 7 | 7 | 6 | 4 | 6 | 4 | 3 | 5 | 10 | 5 |
| Greenville, Miss.<br>Vicksburg, Miss.<br>Natchez, Miss.<br>Baton Rouge, La.<br>New Orleans, La. | Rail | 75 | 63 | 55 | 42 | 33 | 29 | 21 | 32 | 20 | 15 | 23 | 47 | 35 |
| | Boat | 50 | 40 | 35 | 26 | 23 | 20 | 15 | 19 | 15 | 10 | 16 | 35 | 25 |
| | Differential | 25 | 23 | 20 | 16 | 10 | 9 | 6 | 13 | 5 | 5 | 7 | 12 | 10 |
| FROM MEMPHIS, GREENVILLE, VICKSBURG, AND NATCHEZ TO | | | | | | | | | | | | | | |
| Greenville, Miss.<br>Vicksburg, Miss.<br>Natchez, Miss.<br>Baton Rouge, La.<br>New Orleans, La. | Rail | 45 | 40 | 32 | 25 | 20 | 17 | 12 | 18 | 14 | 12 | 15 | 18 | 18§ |
| | Boat | 30 | 25 | 20 | 18 | 13 | 11 | 8 | 12 | 9 | 8 | 10 | 12 | 12§ |
| | Differential | 15 | 15 | 12 | 7 | 7 | 6 | 4 | 6 | 5 | 4 | 5 | 6 | 6 |
| FROM NEW ORLEANS, BATON ROUGE, NATCHEZ, VICKSBURG, AND GREENVILLE TO | | | | | | | | | | | | | | |
| Natchez, Miss.<br>Vicksburg, Miss.<br>Greenville, Miss.<br>Memphis, Tenn. | Rail | 45 | 40 | 32 | 25 | 20 | 17 | 12 | 18 | 14 | 12 | 15 | 18 | 18§ |
| | Boat | 30 | 25 | 20 | 18 | 13 | 11 | 8 | 10 | 9 | 8 | 19 | 12 | 12§ |
| | Differential | 15 | 15 | 12 | 7 | 7 | 6 | 4 | 8 | 5 | 4 | 5 | 6 | 6 |
| Cairo, Ill. | Rail | 75 | 63 | 55 | 42 | 33 | 29 | 21 | 20 | 20 | 15 | 23 | 47 | 35 |
| | Boat | 50 | 45 | 40 | 30 | 22 | 18 | 15 | 12 | 12 | 11 | 15 | 32 | 22 |
| | Differential | 25 | 18 | 15 | 12 | 11 | 11 | 6 | 8 | 8 | 4 | 8 | 15 | 13 |
| St. Louis, Mo. | Rail | 90 | 75 | 65 | 50 | 40 | 35 | 25 | 25 | 25 | 23 | 28 | 57 | 45 |
| | Boat | 60 | 50 | 45 | 40 | 30 | 22 | 18 | 18 | 18 | 15 | 18 | 41 | 30 |
| | Differential | 30 | 25 | 20 | 10 | 10 | 13 | 7 | 7 | 7 | 8 | 10 | 16 | 15 |
| Peoria, Ill. (from New Orleans only) | Rail | 110 | 90 | 75 | 58 | 47 | 41 | 31 | 31 | 31 | 29 | 33 | 65 | 57 |
| | Boat | 90 | 75 | 65 | 50 | 50 | 43 | .. | .. | .. | .. | .. | .. | .. |
| | Differential | 20 | 15 | 10 | 8 | 4 | ¶ | .. | .. | .. | .. | .. | .. | .. |
| (From other stations) | Rail | 104 | 86 | 74 | 56 | 45 | 40 | 32 | 42 | 28 | 23 | 32 | 63 | 51 |
| | Boat | 90 | 75 | 65 | 50 | 43 | ¶ | .. | .. | .. | .. | .. | .. | .. |
| | Differential | 14 | 11 | 9 | 6 | 2 | .. | .. | .. | .. | .. | .. | .. | .. |
| FROM MEMPHIS TO | | | | | | | | | | | | | | |
| Cairo, Ill. | Rail | 50 | 38 | 35 | 27 | 23 | 19 | 11 | 13 | 10 | 12 | 15 | 13 | 20 |
| | Boat | 35 | 27 | 25 | 19 | 16 | 13 | 7 | 9 | 6 | 8 | 10 | 9 | 14 |
| | Differential | 15 | 11 | 10 | 8 | 7 | 6 | 4 | 4 | 4 | 4 | 5 | 4 | 6 |

TABLE XXIII—*Continued*

| From Memphis to | | Rates in Cents per Hundred Pounds | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Classes (Southern Classification) | | | | | | | | | | | | |
| | | 1 | 2 | 3 | 4 | 5 | 6 | A | B | C | D | E | H | F |
| St. Louis | Rail | 65 | 50 | 45 | 35 | 30 | 25 | 15 | 18 | 15 | 15 | 20 | 18 | 30 |
| | Boat | 45 | 35 | 35 | 25 | 20 | 18 | 10 | 12 | 10 | 10 | 14 | 12 | 20 |
| | Differential | 20 | 15 | 10 | 10 | 10 | 7 | 5 | 6 | 5 | 5 | 6 | 6 | 10 |
| Peoria, Ill | Rail | 85 | 65 | 55 | 43 | 37 | 31 | 21 | 24 | 21 | 21 | 25 | 23 | 42 |
| | Boat | 75 | 60 | 55 | 49 | 33 | φ | .. | .. | .. | .. | .. | .. | .. |
| | Differential | 10 | 5 | 0 | 6* | 4 | .. | .. | .. | .. | .. | .. | .. | .. |

* Rail rates less than boat rates.

† These rates are the sum of the rates from Peoria to St. Louis and from St. Louis to Memphis or Cairo.

‡ No rates published between Peoria and St. Louis for classes 6–10.

§ Less than carload by rail 25 cents, by boat 18 cents.

¶ No rates lower than fifth class from St. Louis to Peoria.

φ Boat rates made on St. Louis combination of locals. No boat rates lower than fifth class between St. Louis and Peoria.

Of course the fact that a significant amount of freight was carried by the boat line in 1911 would seem to be the best proof that an important river movement can be built up. However, there appears to have been considerable extraordinary solicitation of business. The loyalty of the shippers to the waterway development was appealed to, stock was sold to shippers along the route, and considerable interest was developed. This interest, however, will prove temporary unless it will pay the shippers to patronize the boat line.

It may be advantageous to point out some of the conclusions that may be drawn from a comparison of the rates. The differentials between Peoria and St. Louis do not appear to be large enough to overcome insurance, chafing, and drayage. Besides, these are the old rates, and the movement has not been significant in the past. Between Peoria and the points below St. Louis, the combination boat rates are higher than the through rail rates at Cairo, which indicates that there is no movement; and at Memphis the same is true for three of the five classes. From Peoria to points below Memphis the differentials are probably not large enough to overcome transfer at St. Louis, chafing, and insurance.

The rates from St. Louis to Cairo and Memphis are the old ones, and have not attracted any business worthy of mention, although the differentials are from 5 to 15 cents. From St. Louis to points below Memphis, however, the rates are new, and the differentials are from 2 to 30 cents. The differentials of from 15 to 30 cents are sufficient to allow for drayage, insurance (in some cases), chafing, and other disadvantages. Besides, at New Orleans in many cases there is the same drayage for rail traffic as for boat. Moreover, it is between St. Louis and New Orleans that the bulk of the traffic was carried last year. Freight valued as high as $20 a hundred, however, would be subject to an insurance rate of 8 cents per hundred, which would offset a large part of the differential favorable to the boat line. This would seem to limit the value of freight to something like $10. The rates are almost the same north bound and deserve no further discussion here.

The rail rates between Memphis, Tenn., and all points from Greenville, Miss., to New Orleans, La., inclusive, are the same. They are exceptionally low for the longer distances. A rate of 45 cents per hundred pounds on first-class freight between Memphis and New Orleans, for example, is remarkably low. Whether the 30-cent rate on first-class freight will prove remunerative between Memphis and New Orleans is probably the most important point in connection with boat traffic. The rail rates on this section of the route were made to secure the river business for the railways and the end sought has been attained. They were not reduced until the boat lines went out of business and then raised again. They were made and continued so low that not a packet line maintained a schedule between Memphis and New Orleans from 1904 to 1911. The railways thrive on receipts from rates lower than those that the boat lines were able to maintain. And the shippers obtain cheap transportation, not on a part of their freight delivered or received at the wharves, but on all freight delivered or received in the particular part of the city most convenient for them.

In comparison with the rail rates applying on domestic shipments given in Tables XXII and XXIII, those applying on exports and imports between Chicago and St. Louis on the one hand, and New Orleans on the other, are given in Table XXIV.*

The rates on exports are materially lower than the domestic rates, and the rates on imports are scarcely more than half as much as the domestic rates. The first-class rate on imports from New Orleans to Chicago, for example, is only 57 cents, while the domestic rate is $1.10. Could Chicago ask for lower rates on imports? Would these rates pay ocean vessels for a 3,300-mile journey through a river and canal channel from New Orleans to Chicago and return? Or does it seem likely that river vessels constructed for the channel could handle imports at a materially lower rate than the railways are now maintaining?

TABLE XXIV

RAIL RATES ON EXPORTS AND IMPORTS VIA NEW ORLEANS, LA.*

| FROM CHICAGO, ILL., AND ST. LOUIS, TO | RATES IN CENTS PER HUNDRED POUNDS | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Classes | | | | | | | |
| | 1 | 2 | Rule 25 | 3 | Rule 26 | 4 | 5 | 6 |
| New Orleans, La. | 75 | 65 | 55 | 50 | 40 | 35 | 30 | 25 |
| FROM NEW ORLEANS TO | | | | | | | | |
| Chicago, Ill. | 57 | 47 | 40 | 38 | 30 | 27 | 24 | 19 |
| St. Louis, Mo. | 70 | 58 | 49 | 47 | 38 | 33 | 29 | 23 |
| Cairo, Ill. | 72 | 60 | 51 | 48 | 38 | 34 | 30 | 24 |

* W. H. Hosmer's tariffs, Interstate Commerce Commission Nos. A-141, A-126, and A-127.

## 26. *Comparison of Commodity Rates by Rail with Those by River*

In Table XXV the rail rates on commodities between the more important common points are compared with the boat rates.[1] The

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[1] Mr. H. W. Leyhe, general agent of the Eagle Packet Company, furnished the commodity rates applying between Peoria and St. Louis; Mr. J. E. Massengale, traffic manager, St. Louis & Tennessee River Packet Company, between St. Louis and Cairo. The rates on the section of the river between Vicksburg and New Orleans were obtained from the tariffs of the Railroad Commission of Louisiana. The rates applying between St. Louis and Cairo on the one hand and New Orleans and group points were obtained from the tariffs of the Mississippi Valley Transportation Company.

## TABLE XXV

### COMPARISON OF RAIL RATES, APPLYING ON COMMODITIES SHIPPED IN LARGEST AMOUNTS BETWEEN THE MORE IMPORTANT COMMON POINTS ON THE PROPOSED WATER ROUTE, WITH CORRESPONDING BOAT RATES

### SECTION 1. RATES SOUTHWARD FROM CHICAGO*

| To | Commodity | Rail Rate | Commodity | Rail Rate | Commodity | Rail Rate |
|---|---|---|---|---|---|---|
| Peoria, Ill. | Petroleum | 8 | Grain products | 6 | Sugar | 8 |
| | Syrup | 8 | Pig iron | 6 | Manufactured iron | 7 |
| | Sand | 6 | Stone | 8 | Vegetables | 10 |
| | Canned goods | 13 | Lumber | 10 | Vehicles | 14 |
| | Furniture | 18 | | | | |
| St. Louis, Mo. | Manufactured iron | 11 | Potatoes | 12 | Salt | 9 |
| | Cured meats | 10 | Machinery | 16 | Molasses | 10 |
| | Wheat | 8 | Beer | 14 | Grain products | 8 |
| | Agricultural implements | 16 | | | | |
| Cairo, Ill. | Salt | 11 | Potatoes | 14 | Wheat | 10 |
| | Oats | 10 | Coal | 7 | Syrup | 17 |
| | Lumber | 11 | Sand | 7 | Stone | 11 |
| | Clay | 11 | Cured meats | 18 | Manufactured iron | 15 |
| Memphis, Tenn. | Potatoes | 27 | Cured meats | 32 | Oats | 13 |
| | Manufactured iron | 19 | Grain products | 15 | Salt | 14 |
| | Beer | 22 | Hay | 18 | Syrup | 37 |
| | Machinery | 31 | Hardware | 31 | | |
| Greenville, Miss. | Cured meats | 44 | Salt | 23 | Potatoes | 35 |
| | Grain products | 21 | Beer | 27 | Manufactured iron | 28 |
| | Machinery | 41 | Lumber | 30 | | |
| Vicksburg, Miss. | Cured meats | 44 | Potatoes | 35 | Lumber | 30 |
| | Grain products | 21 | Beer | 27 | Agricultural implements | 36 |
| | Machinery | 41 | Oats | 18 | Manufactured iron | 28 |
| | Furniture | 58 | | | | |
| Natchez, Miss. | Cured meats | 44 | Salt | 22 | Potatoes | 35 |
| | Corn | 18 | Hardware | 41 | Beer | 27 |
| | Syrup | 47 | | | | |
| Baton Rouge, La. | Potatoes | 35 | Cured meats | 44 | Manufactured iron | 28 |
| | Beer | 27 | Corn | 18 | Hardware | 28 |
| New Orleans, La. | Potatoes | 35 | Cured meats | 44 | Grain products | 21 |
| | Beer | 27 | Manufactured iron | 28 | Fertilizer | 21 |
| | Hay | 26 | Syrup | 47 | | |

---

* There are no boat rates in effect between Chicago and points on the route. The rail rates were obtained from Mr. Joseph Hattendorf, general freight agent, Illinois Central Railroad Company. A fraction of one-half or more is written as an additional cent; fractions less than one-half are disregarded.

rates are reduced to cents per hundred pounds, and fractions are disregarded or computed as additional cents.

The rates are here tabulated according to the geographical order of the stations. Beginning with Chicago, the south-bound rates are given, and with New Orleans the north-bound rates are tabulated. The rates are given on the commodities moving in largest amounts by rail for the calendar year 1909, and are arranged approximately in the order of the amounts of the several commodities. For example, in Section 1 of Table XXV, petroleum is placed first as the chief commodity moving from and through Chicago to and through Peoria. Of course a large part of the freight does not originate at Chicago, nor is it destined to Peoria; but it originates beyond and is destined beyond. This through freight does not move on the local rail rates, but on the proportions applicable on the section of the route over which it moves. The local rates are higher, but are appropriately chosen for the comparative purpose of the table, inasmuch as boat lines are largely limited to freight moving from port to port.

The important question is: What freight can the boats obtain at the large competitive points? From Chicago, for example, what freight could be carried by boat to the points along the route? Among the several commodities named in discussing the freight handled through the Port of Chicago, was manufactured iron. There is a considerable movement of this commodity from Chicago and vicinity to and through Peoria, St. Louis, and other river points. But we have given the opinion of the traffic manager[1] of the Illinois Steel Company that his company could not use the waterway even if it were made 20 or more feet in depth. The rate on manufactured iron from Chicago to Peoria is 7 cents a hundred, and to St. Louis 11 cents. When asked if it would not be possible to ship iron by boat from the harbor of South Chicago to Peoria or St. Louis at these rates, Mr. Bentley replied that no large part of his shipments was destined to these points, but through them to the Southwest; and that the through rail rates to destination were little more than the local rates from these points to destination. He gave a similar reason for not shipping via the lakes through Duluth to the Northwest. However, he stated further that he found it advantageous to ship by water to lake ports only where the competing railways were forced to make a circuitous route, as in the case of the ports on the north shore of Lake Superior; and that it would not pay him to ship freight destined to St. Louis via an all-water route composed of canals and rivers.

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[1] Mr. Frank T. Bentley.

It would seem that if manufactured iron cannot be carried from Chicago for local delivery at Peoria, St. Louis, or other river points, other manufactures could not. The iron plants are located on the lake, and iron could be loaded from the mills into the boats. Such commodities as agricultural implements, hardware, furniture, vehicles, dry goods, notions, and other manufactures of comparatively high value and delicate finish could be carried less advantageously than iron on the river. Mr. Frank B. Montgomery, traffic manager for the International Harvester Company, admitted to the writer that "chafing" alone would be an important factor against shipping agricultural implements by river. Mr. James J. Wait, traffic manager for Hibbard, Spencer & Bartlett, of Chicago, was of the opinion that the waterway would be of service to his company in shipping hardware; but the Simmons Hardware Company of St. Louis makes no use whatever of the Mississippi between St. Louis and rail points on the river, though the Mississippi River is a more efficient waterway than could reasonably be constructed between St. Louis and Chicago. Grain moves east through Chicago, but even with an open route such as the lakes, the railways carry the larger part of the grain. Of course packing-house products are shipped by rail, and could not be easily attracted to a river route.

In Section 2 of Table XXV, it is shown that the commodity rates from Peoria to St. Louis are less by rail than by boat for every commodity listed except butter and cheese. It would not be worth while to compare the combination boat rates between Peoria and points below St. Louis with the through rail rates, for there could be no through movement when the boat rates, as at present, are higher than the rail rates.

In Section 3, the rates from St. Louis to points on the lower river are shown. From 1904 to 1911 there had been no through

### TABLE XXV—*Continued*

### SECTION 2. RATES SOUTHWARD FROM PEORIA

| To | Commodity | Boat Rate | Rail Rate | Differential | Commodity | Boat Rate | Rail Rate | Differential |
|---|---|---|---|---|---|---|---|---|
| St. Louis, Mo. | Oats | 10 | 6 | 4* | Manufactured iron | 13 | 7 | 6* |
| | Grain products | 10 | 7 | 3* | Hay | 15 | 9 | 6* |
| | Butter and cheese | 15 | 18 | 3 | Furniture | 25 | 18 | 7* |
| | Cured meats | 15 | 9 | 6* | Machinery | 30 | 14 | 16* |
| | Agricultural implements | 15 | 11 | 4* | Fruits and vegetables | 30 | 10 | 20* |
| | Beer | 15 | 13 | 2* | Tile | 8 | 6 | 2* |
| Cairo, Ill.† | Flour | ... | 8 | ... | Beer | ... | 18 | ... |
| | Manufactured iron | ... | 15 | ... | Potatoes | ... | 13 | ... |
| | Hay | ... | 11 | ... | Oats | ... | 8 | ... |
| | Fertilizer | ... | 10 | ... | Syrup | ... | 15 | ... |
| | Corn | ... | 8 | ... | Machinery | ... | 17 | ... |
| | Cabbage | ... | 13 | ... | Clay | ... | 10 | ... |
| Memphis, Tenn. | Buckwheat | ... | 12 | ... | Oats | ... | 12 | ... |
| | Flour | ... | 12 | ... | Beer | ... | 20 | ... |
| | Machinery | ... | 30 | ... | Potatoes | ... | 26 | ... |
| | Manufactured iron | ... | 16 | ... | Agricultural implements | ... | 22 | ... |
| | Grain products | ... | 12 | ... | Hay | ... | 15 | ... |
| | Syrup | ... | 35 | ... | Petroleum | ... | 35 | ... |
| Greenville, Miss. | Packing-house products | ... | 42 | ... | Hardware | ... | 41 | ... |
| | Salt | ... | 19 | ... | | | | |
| Vicksburg, Miss. | Potatoes | ... | 34 | ... | Packing-house products | ... | 42 | ... |
| | Beer | ... | 24 | ... | Manufactured iron | ... | 25 | ... |
| Natchez, Miss. | Flour | ... | 18 | ... | Cured meats | ... | 42 | ... |
| | Potatoes | ... | 34 | ... | Manufactured iron | ... | 25 | ... |
| Baton Rouge, La. | Flour | ... | 18 | ... | | | | |
| New Orleans, La. | Grain products | ... | 18 | ... | Flour | ... | 18 | ... |
| | Potatoes | ... | 34 | ... | Cured meats | ... | 42 | ... |
| | Beer | ... | 24 | ... | Manufactured iron | ... | 25 | ... |
| | Hay | ... | 23 | ... | Brick | ... | 18 | ... |
| | Machinery | ... | 40 | ... | Oats | ... | 18 | ... |
| | Hardware | ... | 41 | ... | | | | |

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* The rail rates are lower than the boat rates.

† There are no through boat rates in effect, except to St. Louis, from Peoria. As local rates are higher by boat than by rail, the combination of the boat locals on St. Louis is so much higher in the case of commodity rates that comparison is not necessary.

boat line between St. Louis and points below Memphis. But in 1911 the Mississippi Valley Transportation Company published both class and commodity rates applying at the most important points between St. Louis and New Orleans. These rates are on an average some 30 per cent less than the rail rates applying between the important river points. However, rates from St. Louis to Cairo were not included in the tariffs of the company. The rates from St. Louis to Cairo given in the table are those of the boat lines that touch at that point. It is shown that the rail rates are the lower on more than half of the commodities.

From St. Louis to Memphis the reduced boat rates of the Mississippi Valley Transportation Company are shown. But it is plain that the boats are limited in the amount of freight that can be secured, even with specially reduced rates between St. Louis and Memphis. For example, the rate on grains was reduced to 8 cents, while the local rate by rail was 11 cents on wheat and 10 cents on other grains. The grains do not grow in the streets of St. Louis but in the fields of Kansas and other states. They are carried through St. Louis with the privilege of milling in transit at a proportion of the through rate of, roughly, 7 cents between St. Louis and Memphis and 11 cents between St. Louis and New Orleans. Of course shippers will not pay 8 cents to Memphis and 15 cents to New Orleans when they can save transfer at St. Louis and ship by rail for 7 cents to Memphis and 11 cents to New Orleans with the milling-in-transit privilege. Shippers who do not have grain milled at St. Louis ship on a through bill of lading at the through rate. On grain shipped into St. Louis by boat the local rates apply out by rail. That is, the rail rates to Memphis are 10 cents on coarse grains and 11 on wheat, while the boat rates are only 8 cents. This explains the movement of a small amount of sacked grain from St. Louis to Memphis by boat in 1911.

The decline in the shipment of grain has perhaps attracted more attention than any other phase of the declining river traffic. It is sometimes said that the reason the barge lines no longer carry grain to New Orleans is that there is no longer any grain to ship. It is true that the rail movement of grain from Kansas, Nebraska, Missouri, and Oklahoma through Memphis, and through Galveston

## TABLE XXV—*Continued*

### SECTION 3. RATES SOUTHWARD FROM ST. LOUIS

| To | Commodity | Boat Rate | Rail Rate | Differential | Commodity | Boat Rate | Rail Rate | Differential |
|---|---|---|---|---|---|---|---|---|
| Cairo, Ill. | Wheat | 10† | 6 | 4* | Oats | 10† | 6 | 4* |
| | Cured meats | 15 | 14 | 1* | Common brick | 6 | 7 | 1 |
| | Corn | 10† | 6 | 4* | Syrup | 10† | 14 | 4 |
| | Potatoes | 15 | 10 | 5* | Manufactured iron | 10 | 11 | 1 |
| | Fire-brick | 6 | 8 | 2 | Grain products | 10† | 6 | 4* |
| | Flour | 10† | 6 | 4* | Cement | 7 | 7 | 0 |
| Memphis, Tenn. | Oats | 8† | 10 | 2 | Petroleum | 11 | 12 | 1 |
| | Corn | 8† | 10 | 2 | Grain products | 8 | 10 | 2 |
| | Hay | 12 | 12 | 0 | Cured meats | 10 | 15 | 5 |
| | Potatoes | 19 | 22 | 3 | Flour | 8† | 11 | 3 |
| | Manufactured iron | 9 | 13 | 4 | Horses | 18 | 13 | 5* |
| | Wheat | 8† | 11 | 3 | Fire-brick | 8 | 10 | 2 |
| Greenville, Miss. | Grain products | 15 | 16 | 1 | Flour | 15 | 18 | 3 |
| | Cured meats | 25 | 33 | 8 | Petroleum | 20 | 18 | 2* |
| | Oats | 15 | 16 | 1 | Hay | 18 | 20 | 2 |
| | Fire-brick | 15 | 15 | 0 | Horses | ‡ | 23 | ... |
| | Beer | 16 | 22 | 6 | Corn | 15 | 16 | 1 |
| | Steel rails | 10 | 10 | 0 | Hardware | 18 | 25 | 7 |
| Vicksburg, Miss. | Grain products | 15 | 16 | 1 | Oats | 15 | 16 | 1 |
| | Beer | 16 | 16 | 0 | Oats | 15 | 16 | 1 |
| | Fire-brick | 15 | 15 | 0 | Potatoes | 20 | 30 | 10 |
| | Corn | 15 | 16 | 1 | Flour | 15 | 18 | 3 |
| | Cured meats | 25 | 33 | 8 | Horses | ‡ | 25 | ... |
| | Syrup | 30 | 40 | 10 | Machinery | 25 | 35 | 10 |
| Natchez, Miss. | Oats | 15 | 16 | 1 | Grain products | 15 | 16 | 1 |
| | Cured meats | 25 | 33 | 8 | Flour | 15 | 18 | 3 |
| | Potatoes | 20 | 30 | 10 | Beer | 16 | 22 | 6 |
| | Corn | 15 | 16 | 1 | Petroleum | 20 | 18 | 2* |
| | Fire-brick | 15 | 15 | 0 | Hay | 18 | 20 | 2 |
| | Hardware | 25 | 35 | 10 | Vehicles | 25 | 31 | 6 |
| Baton Rouge, La. | Oats | 15 | 16 | 1 | Grain products | 15 | 16 | 1 |
| | Beer | 16 | 22 | 6 | Flour | 15 | 18 | 3 |
| | Cured meats | 25 | 33 | 8 | Potatoes | 20 | 30 | 10 |
| | Machinery | 25 | 35 | 10 | Corn | 15 | 16 | 1 |
| | Hay | 18 | 20 | 2 | Tile | 14 | 18 | 4 |
| | Sheet iron | 15 | 22 | 7 | Lumber | 16 | 20 | 4 |
| New Orleans, La. | Oats | 15 | 16 | 1 | Corn | 15 | 16 | 1 |
| | Wheat | 15 | 18 | 3 | Grain products | 15 | 16 | 1 |
| | Flour | 12 | 18 | 6 | Cured meats | 25 | 33 | 8 |
| | Potatoes | 20 | 30 | 10 | Hay | 18 | 20 | 2 |
| | Fire-brick | 15 | 15 | 0 | Beer | 16 | 22 | 6 |
| | Hardware | 25 | 35 | 10 | Car wheels | 15 | 22 | 7 |

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* The rail rates are lower than the boat rates.

† Rates on grain and grain products to outside landings between St. Louis and Memphis are 25 cents per hundred pounds.

‡ No boat rates in effect.

and New Orleans by southern routes direct, has diverted grain that otherwise might have been collected at St. Louis for river traffic. Yet the grain receipts at St. Louis were larger for the last five years than for any period of five years except the period from 1901–5, and the shipments were more than for any other five-year period. This is shown by the following figures of average annual receipts and shipments of grain and grain products at St. Louis for quinquennial periods, from 1881 to 1910:

AVERAGE ANNUAL RECEIPTS AND SHIPMENTS OF GRAIN AND GRAIN PRODUCTS AT ST. LOUIS FOR QUINQUENNIAL PERIODS, FROM 1881 TO 1910

| Years | Receipts | Shipments |
|---|---|---|
| 1881–1885 | 54,345,083 | 41,646,235 |
| 1886–1890 | 57,824,862 | 44,824,862 |
| 1891–1895 | 60,957,778 | 44,176,750 |
| 1896–1900 | 61,156,599 | 47,249,044 |
| 1901–1905 | 85,165,202 | 64,781,005 |
| 1906–1910 | 78,192,891 | 68,189,739 |

Moreover, there has been only a slight decline in the amount of grain shipped from St. Louis to New Orleans, and this decline could not account for the entire cessation of the river traffic in grain. In 1909 the five most important through rail routes from St. Louis to New Orleans probably carried more than 12,000,000 bushels of grain and grain products from and through St. Louis to New Orleans. This amount is more than was ever carried on the river except for two years, 1880 and 1889.

There must be other reasons, then, for the diminution of the grain movement on the Mississippi. The decline in the importation of German cement has been given as a cause of the decline in the boat business between St. Louis and New Orleans. It is thought that the cement traffic, as a return load, enabled the boat lines to remain in business. But the former president of the old St. Louis and Mississippi Valley Transportation Company stated to the writer that the revenue from the up-stream business never amounted to a "drop in the bucket" toward dividends. On account of the current the up-stream traffic does not pay barge lines.

The traffic managers of grain dealers at Memphis and other distributing points state that grain cannot be shipped from the northern fields to lower Mississippi Valley points by boat for several reasons. The grain originates on the farms and is shipped on a through rate with milling-in-transit privileges at St. Louis or other points, allowing only 10 or 11 cents for the proportion south of St. Louis, when destined to New Orleans, or some 7 cents when destined to Memphis. The mills at St. Louis are served by rail spurs, saving drayage; and the dealer at Memphis usually avoids drayage by locating his warehouse on the belt line, whereas the oscillating river stage prevents the location of warehouses to advantage on the wharf. Or, the grain is shipped to Memphis for milling, and is sent out by the dealer to his customers on the through rate from the northern field to the planter in Mississippi or elsewhere.

The lack of depth in the river channel is the reason commonly assigned for the falling-off in river traffic. But the channel has been markedly improved since 1890, when barge traffic was flourishing. The low-water channel between St. Louis and Cairo was about 4 feet in depth in 1890; it is now 8 feet. The barges in the palmy days of river traffic, even when more water was available, rarely loaded to a draft of more than 8 feet. The officers of the old barge lines do not assign lack of depth of channel as a cause of the destruction of their business. They say it was due to rail competition. The railways serve the wheat-growing regions; and when they extended their through service to the South, built tracks to all important collecting points, constructed elevators on their lines, and made the rates so low that the boat lines could no longer attract the grain to the river, then it was that the keen financiers who directed the business organization of the barge companies sold the equipment and retired before their more efficient competitors. The managers of the old Mississippi Valley Transportation Company state that they were backed by able and keen financiers, that they could have built steel barges or any other equipment that would have made the river business a paying business, but that they saw that they could never retain enough traffic to pay dividends. They further assert now that no barge line can ever attract the business, that the railways will "take the business" without regard to the kind of equipment that may be floated on the river.

Before leaving the discussion of freight movement from St. Louis by barge, the movement of coal to and from St. Louis should be considered. A favorite idea of waterway advocates is that low-grade freight would seek an improved Mississippi. Many think coal would be shipped by water from southern Illinois to St. Louis and Chicago, or from St. Louis to the South. The coal in the latter case would be collected at St. Louis from the Illinois mines. The statement of a few conditions and rates will show that this is improbable. The Union Electric Light & Power Company of St. Louis is located on the bank of the river. A letter from this company states: "We are not receiving coal by river; all our coal comes by rail from the near-by fields in Illinois, as the price is much cheaper than to get coal by water. Our coal requirements are over 300,000 tons a year at an average cost of $1.15 per ton f.o.b. the power stations." The Western Kentucky Coal Company now carries coal from the mines on the Ohio River near Providence, Ky., to Memphis, but this company has found it impracticable to furnish coal to the above-named important consumer, even on the very banks of the river at St. Louis. There is all the water needed, but the railways furnish coal cheaper than the boat company can. If coal cannot be carried from the banks of the Ohio to the banks of the Mississippi at St. Louis, in competition with rail coal, how could it be carried up stream through a system of locks and canals, in addition to the journey to St. Louis, for 363 miles to Chicago in competition with direct railways? If the boats could reach the mines in southern Illinois, and would carry the coal free to Chicago, the drayage rate for city deliveries might still involve an expense as great as the cost of delivery by railway. Coal is loaded throughout central Illinois and carried by rail to any team track in Chicago or St. Louis for from 3 to 4 cents a hundred, or 1 cent more than the cost of drayage for a distance of one mile in St. Louis.

As shown in Section 3 of Table XXV, potatoes are a commodity that moves in large quantities from St. Louis to Memphis, but potatoes grow in Minnesota or elsewhere and are moved on special schedule with attendants, usually. The 3 cents difference between boat and rail rates would not balance cost of transfer, even if there were no other advantages of shipping by rail. Manufactured iron moves from St. Louis to Memphis at 9 cents by boat and 13 by rail, but the drayage of 2½ cents at each end of the haul, not to mention the insurance, makes the rail rate cheaper. Fire-brick moves from St. Louis to Memphis and New Orleans at the same rates by rail or river. But the brick from points north and west of St. Louis moves through St. Louis to these points on a through rate which allows less than the local rates for the section of the route between St. Louis and Memphis. For two reasons the boats could not carry brick from St. Louis to lower river points: (1) Fire-brick fleaks easily, and is packed in straw in cars on the tracks at the kilns 8 miles west of St. Louis. (2) For the boats to obtain this brick, it would be necessary to switch the cars to the wharf and transfer to the boat. The cost of switching and transfer at origin and the damage by fleaking make the rail rates cheaper, even if insurance, drayage, and switching at destination be disregarded.

Beer from St. Louis to New Orleans moves at 16 cents by boat and 22 by rail, but insurance is 2 cents and only 4 cents are left for drayage at both origin and destination. Car wheels and certain other articles of machinery move at 15 cents by boat and 22 cents by rail from St. Louis to New Orleans. It would seem that the boats might attract this class of business though the margin under the rail rates is small.

A fair idea of the nature of the freight carried from St. Louis to New Orleans in 1911 on the reduced rates made by the Mississippi Valley Transportation Company may be obtained from the following itemized statement of one of the cargoes. The towboat "Mariner" arrived at New Orleans on September 5, 1911, with the steel barge "Edward E. Green" and another in tow, and according to the *New Orleans Picayune* of September 6, brought the following items of freight: 800 sacks of corn; 200 sacks of oats; 2,240 pieces of bar iron; 561 bundles of bar iron; 226 barrels of chain; 4,649 bundles of singletrees (iron?); 120 bottles of beer; 234 car jacks; 100 crates of tinware; 825 rolls of roofing paper; 864 cases of baking powder; 1,550 bundles of galvanized iron; 271 bundles of wire fencing; 2,400 bundles of water pipe; 9,000 sacks of cement; 1,012 empty barrels; and a quantity of miscellaneous freight.

TABLE XXV—*Continued*

SECTION 4. RATES SOUTHWARD FROM CAIRO

| To | Commodity | Boat Rate | Rail Rate | Differential | Commodity | Boat Rate | Rail Rate | Differential |
|---|---|---|---|---|---|---|---|---|
| Memphis, Tenn. | Oats | 5.5 | 8 | 2.5 | Corn | 5.5 | 8 | 2.5 |
| | Flour | 5.5 | 9 | 3.5 | Grain products | 5.5 | 8 | 2.5 |
| | Hay | 8 | 9 | 1 | Wheat | 5.5 | 9 | 3.5 |
| | Manufactured iron | 7 | 8 | 1 | Potatoes | 15 | 17 | 2 |
| | Hardware | 15 | 19 | 4 | Agricultural implements | 9 | 13 | 4 |
| | Petroleum | 9 | 11 | 2 | Lumber | 13 | 10 | 3* |
| Greenville, Miss. | Flour | 10 | 15 | 5 | Oats | 10 | 14 | 4 |
| | Hay | 15 | 15 | 0 | Corn | 10 | 14 | 4 |
| | Lumber | 15 | 18 | 3 | Salt | 10 | 12 | 2 |
| | Agricultural implements | 20 | 25 | 5 | Hardware | 25 | 29 | 4 |
| Vicksburg, Miss. | Oats | 15 | 14 | 1* | Hay | 15 | 15 | 0 |
| | Stone | 10 | 13 | 3 | Potatoes | 20 | 24 | 4 |
| | Cured meats | 19 | 27 | 8 | Corn | 10 | 14 | 4 |
| | Salt | 10 | 12 | 2 | Flour | 10 | 14 | 4 |
| | Hardware | 25 | 29 | 4 | Manufactured iron | 13 | 17 | 4 |
| Natchez, Miss. | Oats | 10 | 14 | 4 | Hay | 15 | 15 | 0 |
| | Flour | 10 | 14 | 4 | Potatoes | 20 | 24 | 4 |
| | Agricultural implements | 20 | 25 | 5 | Hardware | 25 | 29 | 4 |
| Baton Rouge, La. | Oats | 10 | 14 | 4 | Corn | 10 | 14 | 4 |
| | Grain products | 10 | 14 | 4 | Hay | 15 | 15 | 0 |
| | Vehicles | 20 | 25 | 5 | | | | |
| New Orleans, La. | Oats | 10 | 14 | 4 | Corn | 10 | 14 | 4 |
| | Grain products | 10 | 14 | 4 | Flour | 10 | 14 | 4 |
| | Machinery | 12 | 19 | 7 | Lumber | 15 | 18 | 3 |
| | Hay | 15 | 15 | 0 | Manufactured iron | 13 | 17 | 4 |
| | Hardware | 20 | 29 | 9 | Agricultural implements | 20 | 25 | 5 |
| | Petroleum | 15 | 18 | 3 | Fertilizer | 12 | 10 | 2* |

* The rail rates are lower than the boat rates.

Passing Section 4 of the table, Section 5 shows that cotton is the commodity shipped in largest amount from Memphis to New Orleans by rail. The movement of cotton in the lower Mississippi Valley is a good example of the efficiency of the railways in competition with even a broad and deep waterway, such as the Mississippi is below Memphis. It is not difficult to understand why cotton will probably never be shipped again in important quantities between Memphis and New Orleans by water. The rail rate on compressed cotton is $1.00 a bale. On cotton shipped by river the insurance rate for 1910 was 50 cents a bale;[1] the drayage from the compress, 25 cents; and the damage to cotton from muddy banks and exposure to the weather is perhaps equal to the remaining 25 cents a bale. Perhaps therefore cotton from the compress at Memphis would not be shipped by boat, even if there were no charges for the boat haul, and yet the rate was 60 cents a bale in 1911. The charges, then, by boat were virtually $1.35 against only $1.00 by rail. Moreover, when cotton is shipped into Memphis by rail the rate out is only 90 cents when destined to New Orleans. One of the largest cotton factors of Memphis stated to the writer that "almost any other commodity could be shipped by river from Memphis to New Orleans better than cotton." But the grain dealers of Memphis were of the same opinion concerning grain from St. Louis. Indeed, almost every shipper along the route can explain why his commodity cannot be shipped by river.

A large planter and ginner near Greenville whose gin is located scarcely 200 yards from the levee, on being asked why he did not ship his cotton by river, said: "Too far to haul it." The river landing at this point is only three miles inside the levee, the average distance from the levee. There are other reasons why he does not ship by river. One of them is that it costs more to ship by river, even if the wagon haul at Gunnison be not considered. He markets his cotton at Memphis. The boat rate from Gunnison to Memphis is 75 cents per bale, the levee tax 10 cents, the insurance 35 cents, and the drayage at Memphis 25 cents, a total of $1.45 per bale. The rail rate, which practically includes the insurance, is $1.375 per bale, and the saving by rail is 7½ cents, in addition to the cost of the wagon haul at Gunnison. Moreover, when the cotton is destined beyond Memphis, it is shipped on a through bill of lading and compressed in transit. The bill of lading is negotiable when the cotton is receipted for at point of origin by the carrier. At present the boat lines do not issue through bills of lading, and a heavy bond would be necessary to enable them to issue order bills of lading on large amounts of cotton. The larger part of the cotton is shipped on a through rate from the farm to the point of destination, a northern mill, or a seaport. The through rate allows

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[1] This rate could probably be reduced for steel barges, but the Mississippi Valley Transportation Company was unable to induce the cotton factors of Memphis to ship by river in 1911.

TABLE XXV—*Continued*

SECTION 5. RATES SOUTHWARD FROM MEMPHIS

| To | Commodity | Boat Rate | Rail Rate | Differential | Commodity | Boat Rate | Rail Rate | Differential |
|---|---|---|---|---|---|---|---|---|
| Greenville, Miss. | Oats | 8 | 9 | 1 | Corn | 8 | 9 | 1 |
| | Grain products | 8 | 9 | 1 | Flour | 8 | 9 | 1 |
| | Hay | 10 | 12 | 2 | Coal | 9 | 8 | 1* |
| | Cured meats | 12 | 18 | 6 | Common brick | 9 | 7 | 2* |
| | Lumber | 12 | 9 | 3* | Potatoes | 12 | 12 | 0 |
| | Beer | 12 | 15 | 3 | Machinery | 12 | 17 | 5 |
| Vicksburg, Miss. | Oats | 8 | 9 | 1 | Corn | 8 | 9 | 1 |
| | Grain products | 8 | 9 | 1 | Cured meats | 10 | 18 | 8 |
| | Flour | 8 | 9 | 1 | Manufactured iron | 12 | 12 | 0 |
| | Cotton oil | 15 | 15 | 0 | | | | |
| | Common brick | 9 | 10 | 1 | Fertilizer | 7.5 | 9 | 1.5 |
| | Hay | 12 | 12 | 0 | Lumber | 12 | 10 | 2* |
| | | | | | Potatoes | 12 | 12 | 0 |
| Natchez, Miss. | Oats | 8 | 9 | 1 | Flour | 8 | 9 | 1 |
| | Grain products | 8 | 9 | 1 | Corn | 8 | 9 | 1 |
| | Cured meats | 12 | 18 | 6 | Manufactured iron | 12 | 12 | 0 |
| | Hay | 12 | 12 | 0 | | | | |
| | Potatoes | 12 | 12 | 0 | Common brick | 8 | 10 | 2 |
| | Machinery | 11 | 17 | 6 | Hardware | 11 | 17 | 6 |
| | | | | | Agricultural implements | 11 | 17 | 6 |
| Baton Rouge, La. | Manufactured iron | 12 | 12 | 0 | Grain products | 8 | 9 | 1 |
| | | | | | Flour | 8 | 9 | 1 |
| | Petroleum | 12 | 17 | 5 | Oats | 8 | 9 | 1 |
| | Corn | 8 | 9 | 1 | Machinery | 11 | 17 | 6 |
| | Cured meats | 12 | 18 | 6 | Fertilizer | 7.5 | 10 | 2.5 |
| | Potatoes | 12 | 12 | 0 | Hay | 12 | 12 | 0 |
| | Salt | 7 | 9 | 2 | | | | |
| New Orleans, La. | Cotton | 15 | 20 | 5 | Lumber | 11 | 12 | 1 |
| | Flour | 8 | 9 | 1 | Corn | 8 | 9 | 1 |
| | Cured meats | 12 | 18 | 6 | Wheat | 8 | 12 | 4 |
| | Oats | 8 | 9 | 1 | Grain products | 9 | 8 | 1* |
| | Common brick | 8 | 10 | 2 | Potatoes | 12 | 12 | 0 |
| | Hay | 12 | 12 | 0 | Hardware | 11 | 17 | 6 |

* The rail rates are lower than the boat rates.

## TABLE XXV—*Continued*

### SECTION 6. RATES SOUTHWARD FROM GREENVILLE, VICKSBURG, NATCHEZ, AND BATON ROUGE

| From Greenville, Miss., to | Commodity | Boat Rate | Rail Rate | Differential | Commodity | Boat Rate | Rail Rate | Differential |
|---|---|---|---|---|---|---|---|---|
| Vicksburg, Miss.... | Cotton-seed meal | 12 | 10 | 2* | Cotton-seed hulls | 12 | 10 | 2* |
| | Wheat.......... | 8 | 5 | 3* | Grain products.. | 8 | 5 | 3* |
| | Ice............ | 9 | 10 | 1 | Cotton......... | 15 | 15 | 0 |
| | Cattle.......... | 11 | 13 | 2 | Vehicles....... | 23 | 32 | 9 |
| | Lumber......... | 11 | 6 | 5* | Coal.......... | 9 | 6 | 3* |
| | Common brick... | 9 | 4 | 5* | | | | |
| Baton Rouge, La. and Natchez, Miss............ | Cotton seed ..... | 8 | 10 | 2 | Machinery ..... | 11 | 17 | 6 |
| | Cotton-seed hulls | 8 | 10 | 2 | Cotton-seed meal | 12 | 10 | 2* |
| New Orleans, La... | Cotton......... | 15 | 20 | 5 | Cotton-seed meal | 12 | 10 | 2* |
| | Cotton-seed hulls. | 8 | 11 | 3 | Lumber........ | 11 | 11 | 0 |
| | Cotton oil....... | 11 | 17 | 6 | Grain products.. | 8 | 12 | 4 |
| **From Vicksburg, Miss., to** | | | | | | | | |
| Natchez, Miss...... | Cured meats .... | 15 | 18 | 3 | Cotton-seed meal | 8 | 10 | 2 |
| | Cotton-seed hulls | 8 | 10 | 2 | Hardware...... | 18 | 25 | 7 |
| | Grain products .. | 8 | 12 | 4 | Manufactured iron......... | 8 | 12 | 4 |
| | Potatoes........ | 11 | 14 | 3 | | | | |
| Baton Rouge, La. .. | Cured meats .... | 15 | 18 | 3 | Hay.......... | 12 | 12 | 0 |
| | Cotton-seed meal | 8 | 10 | 2 | Cotton-seed hulls | 8 | 10 | 2 |
| | Lumber......... | 11 | 9 | 2* | Hardware...... | 18 | 25 | 7 |
| New Orleans, La.... | Cotton......... | 15 | 17 | 2 | Lumber........ | 11 | 10 | 1* |
| | Cotton-seed meal | 8 | 9 | 1 | Cotton-seed hulls | 8 | 9 | 1 |
| | Cattle.......... | 20 | 13 | 7* | Cotton seed .... | 8 | 9 | 1 |
| | Coke........... | 15 | 15 | 0 | Hay.......... | 12 | 12 | 0 |
| | Grain products .. | 8 | 12 | 4 | Cotton oil...... | 12 | 15 | 3 |
| | Coal............ | 15 | 15 | 0 | Cured meats ... | 15 | 18 | 3 |
| **From Natchez, Miss., to** | | | | | | | | |
| Baton Rouge, La...... | Cotton-seed meal | 8 | 10 | 2 | Cotton-seed hulls | 10 | 10 | 0 |
| New Orleans, La.... | Cotton......... | 15 | 16 | 1 | Cotton-seed meal | 8 | 9 | 1 |
| | Cotton-seed hulls | 8 | 9 | 1 | Cotton oil...... | 12 | 15 | 3 |
| | Lumber......... | 11 | 11 | 0 | Cattle......... | 20 | 13 | 7* |
| | Sand........... | 8 | 8 | 0 | Vegetables ..... | 11 | 15 | 4 |
| | Hardware....... | 18 | 25 | 7 | Oats.......... | 8 | 12 | 4 |
| **From Baton Rouge, La., to** | | | | | | | | |
| New Orleans, La.... | Sand........... | 8 | 2 | 6* | Gravel......... | 8 | 2 | 6* |
| | Corn........... | 8 | 8 | 0 | Lumber........ | 11 | 7 | 4* |
| | Cotton......... | 10 | 10 | 0 | Brick......... | 7 | 3 | 4* |
| | Cement......... | 7 | 6 | 1* | Cotton-seed meal | 8 | 8 | 0 |
| | Cotton-seed hulls | 8 | 5 | 3* | Wheat......... | 8 | 8 | 0 |
| | Grain products .. | 8 | 8 | 0 | Manufactured iron......... | 11 | 12 | 1 |
| | Cotton seed..... | 8 | 9 | 1 | | | | |

* The rail rates are lower than the boat rates.

compressing en route and is usually lower than a combination of the locals. The case of the planter above is discussed because he is favorably located for river shipping. The planter whose farm is not situated immediately outside the levee, or is located between landings, even on the levee, has still more to lose by shipping by river. With the present rail service and rates, no wide territory in the Mississippi Valley can be served by a waterway, regardless of depth. The present shipping is largely confined to the strip within the levees, and for local shipping 30 feet of water would not increase the economy of shipping on the river.

The traffic agent of a boat company at Greenville stated to the writer that the freight business near Greenville was confined to the traffic within the levees. He said that the farmers could not be blamed for not hauling their produce over the levee inasmuch as the railroads were located immediately outside, and carried freight at the same rates as the boat companies did.

The traffic managers of the packet lines on the Mississippi are a unit in their conviction that an increase in the depth of the channel with the present rail rates would give them no aid. They point out that they cannot get the freight to carry. One manager stated that he formerly carried cement, but that a wagon haul was necessary, and that the managers of the plants now inform him that the railways have laid spurs to their plants, and that they can no longer give him the business. The same boat manager said to the writer that there were certain firms in St. Louis which received freight from his line, and that they were shipping important amounts of freight to a point on his line, but that the officials had informed him that they could not ship by boat even if there were no charge. The drayage, the insurance, and the damage from handling would have been more than the rail rate.

It is interesting to note in Section 7 of Table XXV the commodities that are shipped in largest amounts from New Orleans to Chicago, and the rates. First appears lumber, which is shipped by rail at the local rate of 24 cents. The origin of the larger part of it is in Louisiana west of the Mississippi. Not a foot of this commodity is shipped by river to Memphis or St. Louis; hence it is improbable that it could be shipped beyond these points and through a combined canal and river channel from St. Louis to Chicago.

TABLE XXV—*Continued*

SECTION 7. RATES NORTHWARD FROM NEW ORLEANS

| To | Commodity | Boat Rate | Rail Rate | Differential | Commodity | Boat Rate | Rail Rate | Differential |
|---|---|---|---|---|---|---|---|---|
| Baton Rouge, La. | Manufactured | | | | Petroleum...... | 12 | 12 | 0 |
| | iron.......... | 11 | 12 | 1 | Fertilizer....... | 7.5 | 10 | 2.5 |
| | Lumber......... | 11 | 7 | 4* | Machinery..... | 11 | 12 | 1 |
| | Salt............ | 8 | 8 | 0 | Fresh meats.... | 12 | 18 | 6 |
| | Cured meats .... | 12 | 10 | 2* | Grain products . | 8 | 8 | 0 |
| | Sugar........... | 8 | 10 | 2 | | | | |
| | Molasses........ | 8 | 10 | 2 | | | | |
| Natchez, Miss.... | Petroleum....... | 12 | 12 | 0 | Salt........... | 7 | 9 | 2 |
| | Sugar........... | 8 | 10 | 2 | Fertilizer....... | 7.5 | 10 | 2.5 |
| | Bananas........ | 25 | 25 | 0 | Oranges........ | 25 | 25 | 0 |
| | Cured meats .... | 15 | 18 | 3 | Lard.......... | 15 | 18 | 3 |
| | Fresh meats..... | 25 | 25 | 0 | Beer........... | 10 | 15 | 5 |
| | Lime........... | 7 | 10 | 3 | Brick.......... | 7 | 10 | 3 |
| | Coffee.......... | 11 | 17 | 6 | Machinery ..... | 11 | 17 | 6 |
| Vicksburg, Miss.. | Petroleum....... | 11 | 14 | 3 | Sugar.......... | 7 | 10 | 3 |
| | Salt............ | 8 | 9 | 1 | Bananas....... | 25 | 25 | 0 |
| | Molasses........ | 8 | 10 | 2 | Hardware...... | 18 | 25 | 7 |
| | Dry goods ...... | 50 | 45 | 5* | Cured meats.... | 15 | 18 | 3 |
| | Domestic fruits.. | 20 | 30 | 10 | Vegetables ..... | 18 | 25 | 7 |
| | Rice........... | 8 | 10 | 2 | Lumber........ | 11 | 10 | 1* |
| Greenville, Miss.. | Petroleum....... | 11 | 14 | 3 | Sugar.......... | 7 | 10 | 3 |
| | Hardware....... | 11 | 17 | 6 | Cotton piece | | | |
| | Salt............ | 8 | 9 | 1 | goods........ | 18 | 25 | 7 |
| | Syrup.......... | 8 | 10 | 2 | Bananas....... | 25 | 25 | 0 |
| | Domestic fruits .. | 20 | 30 | 10 | Cured meats ... | 12 | 18 | 6 |
| | Rice........... | 8 | 10 | 2 | Vegetables ..... | 18 | 25 | 7 |
| | Fresh fish....... | 15 | 18 | 3 | Coffee......... | 11 | 17 | 6 |
| Memphis, Tenn... | Sugar........... | 8 | 12 | 4 | Syrup.......... | 8 | 10 | 2 |
| | Bagging........ | 8 | 10 | 2 | Lumber........ | 10 | 12 | 2 |
| | Coffee.......... | 11 | 17 | 6 | Petroleum...... | 11 | 14 | 3 |
| | Salt............ | 8 | 9 | 1 | Cured meats ... | 12 | 18 | 6 |
| | Lard compound.. | 10 | 18 | 8 | Bananas....... | 35 | 35 | 0 |
| | Cotton oil....... | † | 17 | ... | Oranges ....... | 25 | 25 | 0 |
| Cairo, Ill........ | Lumber......... | 18 | 14 | 4* | Sugar.......... | 12 | 17 | 5 |
| | Bananas........ | 35 | 35 | 0 | Salt........... | 10 | 15 | 5 |
| | Green beans..... | 40 | 61 | 21 | Green peas..... | 50 | 61 | 11 |
| | Oranges......... | 35 | 35 | 0 | Sweet potatoes.. | 22 | 32 | 10 |
| | Beets........... | 30 | 50 | 20 | Radishes....... | 30 | 50 | 20 |
| | Squashes........ | 30 | 50 | 20 | Cabbage....... | 30 | 34 | 4 |
| | Cauliflower...... | 22 | 34 | 12 | | | | |

* The rail rates are lower than the boat rates.

† No rates in effect by river.

TABLE XXV—*Continued*

SECTION 7.—*Continued.* RATES NORTHWARD FROM NEW ORLEANS

| To | Commodity | Boat Rate | Rail Rate | Differential | Commodity | Boat Rate | Rail Rate | Differential |
|---|---|---|---|---|---|---|---|---|
| St. Louis, Mo. . . . | Sugar. . . . . . . . . . | 12 | 17 | 5 | Lumber. . . . . . . . | 22 | 18 | 4* |
| | Salt. . . . . . . . . . . . | 10 | 15 | 5 | Bananas. . . . . . . | † | 43 | . . . . |
| | Coffee. . . . . . . . . . | 18 | 23 | 5 | Sisal. . . . . . . . . . . | 12 | 15 | 3 |
| | Bagging. . . . . . . . | 11 | 14 | 3 | Rice. . . . . . . . . . . | 17 | 24 | 7 |
| | Manufactured | | | | Fertilizer. . . . . . . | 11 | 15 | 4 |
| | iron. . . . . . . . . . | 16 | 21 | 5 | Cotton oil. . . . . . | 18 | 22 | 4 |
| | Cotton-seed meal | 14 | 19 | 5 | | | | |
| | Nitrate of soda . . | 10 | 15 | 5 | | | | |
| Peoria, Ill.† . . . . . | Lumber. . . . . . . . . | . . . | 23 | . . . | Bananas. . . . . . . | . . . . | 46 | . . . . |
| | Sisal. . . . . . . . . . . . | . . . | 18 | . . . | Sugar. . . . . . . . . . | . . . . | 23 | . . . . |
| | Coffee. . . . . . . . . . | . . . | 25 | . . . | Salt. . . . . . . . . . . | . . . . | 19 | . . . . |
| | Rice. . . . . . . . . . . . | . . . | 30 | . . . | Sweet potatoes. . | . . . . | 32 | . . . . |
| | Syrup . . . . . . . . . . | . . . | 27 | . . . | Rosin. . . . . . . . . . . | . . . . | 20 | . . . . |
| | Turpentine. . . . . . | . . . | 31 | . . . | | | | |
| Chicago, Ill.† . . . . | Lumber. . . . . . . . . | . . . | 24 | . . . | Sugar. . . . . . . . . . | . . . . | 23 | . . . . |
| | Coffee. . . . . . . . . . | . . . | 25 | . . . | Bananas. . . . . . . . | . . . . | 48 | . . . . |
| | Oranges. . . . . . . . . | . . . | 46 | . . . | Syrup . . . . . . . . . | . . . . | 27 | . . . . |
| | Rice. . . . . . . . . . . . | . . . | 30 | . . . | Cotton oil. . . . . . | . . . . | 27 | . . . . |
| | Manufactured | | | | Cotton-seed meal | . . . . | 23 | . . . . |
| | iron. . . . . . . . . . | . . . | 25 | . . . | Potatoes. . . . . . . | . . . . | 40 | . . . . |
| | Cotton-seed hulls | . . . | 23 | . . . | | | | |

* The rail rates are lower than the boat rates.

† No rates in effect by river.

A certain amount of coffee was last year carried to St. Louis by boat at 18 cents, and this is probably the freight that is most available for river traffic between these points. Coffee is received on the wharf at New Orleans and is delivered to the coffee merchants at St. Louis located only two blocks from the wharf. Oranges and bananas, of course, could not be carried on boats for long distances. Rice could not be obtained easily for boats as it is shipped from the fields to destination. Sugar, which is manufactured at New Orleans, would seem to be as available as coffee, except that the rate is less. The difficulty that the American Sugar Refinery met a few years ago, when it attempted to make regular shipments of sugar to St. Louis, was that the revenue was not enough to pay the cost of pulling the barge up stream for a thousand miles. The rail rate is 17 cents and the boat rate last year was 12 cents. The first barge load received at St. Louis from New Orleans in 1911

TABLE XXV—*Continued*

SECTION 8. RATES NORTHWARD FROM BATON ROUGE, NATCHEZ, VICKSBURG, AND GREENVILLE

| **From Baton Rouge to** | **Commodity** | **Boat Rate** | **Rail Rate** | **Differential** | **Commodity** | **Boat Rate** | **Rail Rate** | **Differential** |
|---|---|---|---|---|---|---|---|---|
| Natchez, Miss...... | Sugar........... | 8 | 10 | 2 | Molasses....... | 8 | 10 | 2 |
| | Rice............ | 7 | 10 | 3 | Petroleum...... | 8 | 6 | 2* |
| Vicksburg, Miss.... | Molasses........ | 8 | 10 | 2 | Lumber........ | 11 | 12 | 1 |
| | Rice............ | 7 | 9 | 2 | Petroleum...... | 8 | 6 | 2* |
| Memphis, Tenn..... | Lumber.......... | 11 | 7 | 4* | Syrup ......... | 8 | 10 | 2 |
| | Horses.......... | † | 13 | ... | Household goods | 13 | 17 | 4 |
| Cairo, Ill.......... | Lumber.......... | † | 13 | ... | | | | |
| St. Louis, Mo...... | Lumber.......... | † | 18 | ... | Sugar.......... | 12 | 17 | 5 |
| | Syrup .......... | 12 | 21 | 9 | | | | |
| Peoria, Ill......... | Lumber.......... | † | 23 | ... | | | | |
| Chicago, Ill.† ...... | Lumber.......... | ... | 24 | ... | Scrap iron...... | ... | 11 | ... |
| | Cotton-seed meal | ... | 23 | ... | Cotton-seed hulls | ... | 23 | ... |
| | Sugar........... | ... | 23 | ... | Molasses....... | ... | 27 | ... |
| **From Natchez, Miss., to** | | | | | | | | |
| Vicksburg, Miss.... | Cotton-seed meal | 8 | 10 | 2 | Cotton-seed hulls | 8 | 10 | 2 |
| | Corn........... | 8 | 5 | 3* | | | | |
| Greenville, Miss.... | Horses.......... | † | 13 | ... | | | | |
| Memphis, Tenn..... | Lumber.......... | 11 | 8 | 3* | Cotton oil...... | 12 | 17 | 5 |
| | Potatoes........ | 12 | 12 | 0 | | | | |
| Cairo, Ill.......... | Lumber.......... | 13‡ | 13 | 0 | | | | |
| St. Louis, Mo...... | Lumber.......... | 17 | 16 | 1* | Cattle......... | † | 19 | ... |
| | Cotton-seed meal | 12 | 15 | 3 | Cotton-seed hulls | 12 | 15 | 3 |
| Chicago, Ill.† ...... | Cotton oil....... | ... | 20 | ... | Lumber........ | ... | 21 | ... |
| | Potatoes........ | ... | 35 | ... | | | | |
| Peoria, Ill.†........ | Lumber......... | ... | 22 | ... | | | | |
| **From Vicksburg, Miss., to** | | | | | | | | |
| Greenville, Miss.... | Cured meats .... | 10 | 18 | 8 | Fresh meats .... | 18 | 25 | 7 |
| | Lumber......... | 10 | 6 | 4* | Manufactured iron......... | 12 | 12 | 0 |
| | Petroleum....... | 11 | 14 | 3 | | | | |
| Memphis, Tenn..... | Lumber......... | 10 | 8 | 2* | Cotton oil...... | 12 | 17 | 5 |
| | Manufactured iron.......... | 12 | 12 | 0 | Cotton........ | 18 | 20 | 2 |
| | | | | | Lard compound . | 10 | 15 | 5 |
| | Machinery ...... | 11 | 17 | 6 | | | | |
| Cairo, Ill.......... | Lumber......... | 12 | 13 | 1 | | | | |
| St. Louis, Mo. ..... | Lumber......... | 12 | 15 | 3 | Scrap iron...... | 10 | 11 | 1 |
| | Cotton......... | 20 | 30 | 10 | Cotton-seed meal | 10 | 15 | 5 |
| | Cotton-seed hulls | 14 | 19 | 5 | Dry goods ..... | 60 | 90 | 30 |
| Peoria, Ill......... | Lumber......... | ... | 21 | ... | | | | |

* The rail rates are lower than the boat rates.

† No rates in effect by river.

‡ This rate is $4 per thousand feet by barge but is equal to 13 cents a hundred.

TABLE XXV—*Continued*

SECTION 8.—*Continued*. RATES NORTHWARD FROM BATON ROUGE, NATCHEZ, VICKSBURG, AND GREENVILLE

| From Greenville, Miss., to | Commodity | Boat Rate | Rail Rate | Differential | Commodity | Boat Rate | Rail Rate | Differential |
|---|---|---|---|---|---|---|---|---|
| Memphis, Tenn. | Lumber | 11 | 7 | 4* | Cotton | 17 | 17 | 0 |
| | Cotton-seed meal | 8 | 8 | 0 | Cotton-seed hulls | 8 | 8 | 0 |
| | Cotton oil | 12 | 17 | 5 | Naval stores | 12 | 17 | 5 |
| Cairo, Ill | Lumber | 12 | 13 | 1 | | | | |
| St. Louis, Mo | Lumber | 12 | 15 | 3 | Cotton oil | 15 | 22 | 7 |
| Peoria, Ill.† | Lumber | ... | 21 | ... | | | | |
| Chicago, Ill.† | Lumber | ... | 21 | ... | Cotton oil | ... | 27 | ... |
| | Cotton-seed meal | ... | 18 | ... | Cotton-seed hulls | ... | 18 | ... |
| | Sugar | ... | 47 | ... | Scrap iron | ... | 17 | ... |

* The rail rates are lower than the boat rates.
† No rates in effect by river.

consisted of more than a thousand tons of sugar. A commodity that is imported and shipped by rail from New Orleans to St. Louis and Chicago is sisal. It moves at 15 cents to St. Louis and 18 to Chicago. These rates are equivalent, roughly, to 3 mills per ton mile by rail, or less than 2 mills by the proposed waterway. It appears to the writer that these rates are so low that boats cannot carry this freight. The governor of Michigan[1] recently made a strong plea before the Waterway Association for a waterway that would bring sisal to the farmer at a low freight rate. The rail rate to Jackson, Mich., is 23 cents from New Orleans. The insurance would be at least 3 cents a hundred pounds, if shipment were by boat; and the local rail rate from Chicago to Jackson, Mich., is 12 cents. There would be left for the boat rate from New Orleans to Chicago, 1,600 miles, only 8 cents per hundred pounds. The boats could not carry this commodity for that distance up stream, if the depth of the channel were unlimited, for that rate.[2]

These examples might be increased in number, but it is believed that they are sufficient. They indicate some of the conditions of shipping that make the railways more efficient than boats. The writer has been led to ask how the traffic managers of the boat companies obtain the small amount of freight now shipped by boat, rather than why the river traffic has declined. The answer to this question is that there is a limited amount of boat business for which the railways cannot compete. That is, at least one of the termini of the shipment is a point not served by a railway. However, this traffic is decreasing as new lines and feeders are constructed and as plants locate on rail lines and spurs.

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[1] Governor Warner said: "I believe the freight rate on that [sisal] alone would be cut in two if we could send that by boat even as far as St. Louis."

[2] The rate of 12 cents is the class rate for carloads. If a commodity rate as low as 7 cents for the distance of 209 miles should be made, the rate accruing to the boat line including both terminal charges would be only 13 cents for 1,600 miles or $1\frac{2}{3}$ mills per ton-mile.

TABLE XXV—*Continued*

SECTION 9. RATES NORTHWARD FROM MEMPHIS AND CAIRO

| From Memphis, Tenn., to | Commodity | Boat Rate | Rail Rate | Differential | Commodity | Boat Rate | Rail Rate | Differential |
|---|---|---|---|---|---|---|---|---|
| Cairo, Ill | Lumber | 10 | 10 | 0 | Lard compound | 15 | 13 | 2* |
| | Cotton-seed meal | 15 | 9 | 6* | | | | |
| St. Louis, Mo | Lumber | 12 | 12 | 0 | Cotton oil | 10 | 14 | 4 |
| | Cotton-seed meal | 7 | 10 | 3 | Cotton-seed hulls | 7 | 10 | 3 |
| | Iron pipe | 19 | 25 | 6 | Machinery | 18 | 25 | 7 |
| | Cattle | 18 | 11 | 7* | Lard compound | 12 | 18 | 6 |
| | Cotton | 10 | 15 | 5 | Woodenware | 16 | 23 | 7 |
| | Vehicles | 25 | 35 | 10 | | | | |
| Peoria, Ill.† | Lumber | ... | 16 | ... | Cotton-seed meal | ... | 14 | ... |
| | Cotton-seed hulls | ... | 13 | ... | | | | |
| Chicago, Ill.† | Lumber | ... | 16 | ... | Cotton oil | ... | 20 | ... |
| | Cotton-seed meal | ... | 16 | ... | Cotton-seed hulls | ... | 16 | ... |
| | Manufactured iron | ... | 31 | ... | Cured meats | ... | 24 | ... |
| | Cotton | ... | 21 | ... | Potatoes | ... | 31 | ... |
| | Agricultural implements | ... | 31 | ... | Cotton piece goods | ... | 43 | ... |
| **From Cairo, Ill., to** | | | | | | | | |
| St. Louis, Mo | Lumber | 10 | 7 | 3* | Manufactured iron | 10 | 11 | 1 |
| | Wheat | 10 | 6 | 4* | Cattle | 15 | 11 | 4* |
| Peoria, Ill.† | Lumber | ... | 9 | ... | | | | |
| Chicago, Ill.† | Lumber | ... | 10 | ... | Cotton oil | ... | 15 | ... |
| | Potatoes | ... | 43 | ... | Pig iron | ... | 7 | ... |
| | Poultry | ... | 31 | ... | Machinery | ... | 18 | ... |
| | Rice | ... | 19 | ... | Manufactured iron | ... | 15 | ... |
| | Cross ties | ... | 10 | ... | Hides | ... | 16 | ... |

* The rail rates are lower than the boat rates.

† No through boat rates in effect; combinations of locals are so much higher than the through rail rates that comparison is not necessary.

TABLE XXV—*Continued*

SECTION 10. RATES NORTHWARD FROM ST. LOUIS AND PEORIA

| From St. Louis, Mo., to | Commodity | Boat Rate | Rail Rate | Differential | Commodity | Boat Rate | Rail Rate | Differential |
|---|---|---|---|---|---|---|---|---|
| Peoria, Ill. | Lumber | 10 | 7 | 3* | Cotton-seed meal | 15 | 7 | 8* |
| | Cotton-seed hulls | 15 | 7 | 8* | Rice | 15 | 15 | 0 |
| | Fruits | 30 | 10 | 20* | Brick | 20 | 8 | 12* |
| | Cement | 10 | 9 | 1* | Grain products | 10 | 7 | 3* |
| | Water pipe | 15 | 6 | 9* | | | | |
| Chicago, Ill.† | Lumber | ... | 8 | ... | Potatoes | ... | 12 | ... |
| | Beer | ... | 14 | ... | Hogs | ... | 16 | ... |
| | Sugar | ... | 10 | ... | Rice | ... | 18 | ... |
| | Lard compound | ... | 10 | ... | Cement | ... | 7 | ... |
| | Lime | ... | 11 | ... | Brick | ... | 7 | ... |
| | Cotton | ... | 25 | ... | Rosin | ... | 8 | ... |
| | Turpentine | ... | 16 | ... | | | | |
| **From Peoria, Ill., to** | | | | | | | | |
| Chicago, Ill.†‡ | Oats | ... | 6 | ... | Beer | ... | 12 | ... |
| | Cotton-seed meal | ... | 7 | ... | Cotton-seed hulls | ... | 7 | ... |
| | Machinery | ... | 14 | ... | Potatoes | ... | 10 | ... |
| | Wheat | ... | 6 | ... | | | | |

* The rail rates are lower than the boat rates.

† No boat rates published.

‡ A comparison of rail rates in the Mississippi Valley with those in foreign countries would make interesting reading to the student of transportation, but it has been deemed beyond the field of this study, and of sufficient importance to justify a separate paper. Documents numbers 16–22, of the National Waterways Commission of the United States, 1910–11, present valuable material on this subject.

The freight originating at rail points or at points not immediately on the river can be carried more cheaply as well as more satisfactorily by rail in almost every case. Not enough freight can be attracted to the river to enable the boat lines to carry large cargoes; hence no very low cost of transportation is to be attained. The boat lines must handle every ton of freight at both ends of the haul, while the shipper finds it less expensive and more convenient to place his freight in a car on his own spur than to cart it to the boat at scheduled periods. The rail carrier is not required to handle carload freight at either end of the haul. It is clear, then, that here is a saving of no mean significance. When freight of even the lowest grade costs some two or three cents for handling at each terminal, to say nothing of drayage or insurance, it is not difficult to see that it is both cheaper and more convenient to carry low-grade freight, even local freight, by rail than by water. This is a fact well understood by the old river men but not commonly known. Because the waterway is free to boats, the conclusion that low-grade freight can be carried more cheaply by water under all circumstances is usually reached. But the very best proof that the boat lines cannot carry freight as cheaply as the railways can is that the lines that once carried the freight between the competitive points have been forced to abandon the river because they cannot attract enough freight at rates that will pay the cost of operation plus a reasonable profit.

# CONCLUSION

The writer has been asked frequently what his conclusions are concerning the Lakes-to-the-Gulf Deep Waterway. Hence an attempt is made here, following the concrete study of the preceding pages, to state briefly the general conclusions that seem to be supported by the evidence already presented.

In the first place, the cost of even a 14-foot waterway is not insignificant. The engineers have estimated a cost of, roughly, $160,000,000 for the construction of the channel from Joliet to New Orleans and more than $6,000,000 for annual maintenance. At a very conservative estimate, $100,000,000 additional would be necessary to complete the channel from Chicago to Joliet, and the maintenance, including the dredging of the channel for sediment deposited from the sewage of Chicago, would probably amount to some three or four million dollars annually. These items would foot up more than a quarter of a billion dollars for construction and approximately $10,000,000 annually for maintenance. We are accustomed to considering these amounts as insignificant, but if we take one example of what could be done with this amount of money, it will be seen that the amount of value represented is not inconsiderable.

The average capitalized value of American railways is a little less than $60,000 per mile, and this is usually considered an excessive capitalization. If $40,000 more be added for the second track, the value of a mile of double-track railway would be $100,000. The distance between Chicago and New Orleans is less than 1,000 miles by several of the rail routes. It would thus cost only $100,000,000 to construct a double-track freight line tapping the important cities on the route. Twenty-five millions of dollars could be expended for freight equipment, the remaining $125,000,000 could be given to charity, the $10,000,000 for annual maintenance of the waterway would probably defray the expense of up-keep of both the railway and equipment, and the only cost that the rates for carrying freight on this specially equipped double-track railway would be required to cover would be the cost of operation.

On such a railway, operated by the government for freight service only, could be carried both low-grade and high-grade freight, and the rates could be made almost anything—certainly lower than could be made on a waterway between Chicago and New Orleans. Of course it would not be fair to stockholders of the railways paralleling the route to construct and operate such a railway through the government, but the case serves to illustrate both that $250,000,000 is an important amount of money, and that the necessity of constructing artificial waterways has passed.

The lower Mississippi River is now a more efficient waterway than could reasonably be constructed between Chicago and New Orleans. The lower river is wide enough to carry barge fleets of any reasonable dimensions, while the several sections of channel contemplated between Chicago and St. Louis could not be used for important barge fleets. Moreover, the speed of vessels other than barges would be much less on the upper route than at present on the lower route. These conditions make the lower river more efficient than the northern section could be made. But even on the lower route, the barge lines have been unable to attract the competitive freight from the rail lines. The Mississippi Valley Transportation Company, to be sure, made an attempt to revive the river traffic between St. Louis and New Orleans in 1911. A tow with a modern steel barge made six round trips and carried more than 10,000 tons of freight; but so far did the company fail to meet expenses that it was forced to go out of operation, even before the end of one season. It may be possible to establish a line that carries through freight in competition with the railways on the lower river; yet in 1904 the old barge line was forced to give up a long-established traffic, and in 1911 defeat was met by a modern barge line. It is yet to be decided whether a boat line can operate successfully on the lower river carrying freight in competition with the present rail service.

If, then, the more efficient channel of the lower river is of doubtful economic value, why should the American nation construct at a large cost a channel that would be of little or no value? Moreover, in constructing the upper part of the route, an important obstruction to transportation would be effected. Almost all of the hundred bridges spanning this section of the route would require reconstruction to allow for increased width and boat clearance. This burden would fall on the city of Chicago, the municipal railways of Chicago, other steam and electric railways, and the counties along the route that maintain public highways across it. The future construction of electric and other railways in this thickly populated and rapidly growing section would also be retarded by the additional cost for bridges. These are some of the reasons that make the writer believe that it would be a pure economic waste to construct a Lakes-to-the-Gulf Deep Waterway.

In conclusion, if the channel should be used to some extent, and should cause slightly less cost for transportation to certain favored shippers, situated along the route and shipping commodities that could be carried on the waterway, it would even so be questionable social policy for the nation to bear the burden of shipping for a favored class. If the saving were to be equal to the expenditure, and were not to take from vested interests in railways, the project would still be questionable; but if, as the writer believes, the saving to the favored shippers would not be equal to the expenditure, then the policy of taking from the people as a whole to aid a special class is indefensible.

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A large part of this study has been made without books. The traffic conditions and customs have been learned largely through personal interviews with traffic officials of boat lines, railways, and shippers. A few of the more substantial sources consulted, however, are shown below.

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# APPENDIX

# APPENDIX

## COMPARISON OF BOAT WITH RAIL RATES ON THE LOWER MISSISSIPPI RIVER AS PUBLISHED BY THE MISSISSIPPI VALLEY TRANSPORTATION COMPANY AND THE ILLINOIS CENTRAL RAILROAD

## TARIFF NO. 1 OF THE MISSISSIPPI VALLEY TRANSPORTATION COMPANY

EFFECTIVE JUNE 15, 1911

COMPARED WITH CORRESPONDING RAIL RATES PUBLISHED BY THE ILLINOIS CENTRAL RAILROAD. [THE BOAT RATES WERE MADE LOWER THAN THE RAIL RATES FOR THE PURPOSE OF OBTAINING COMPETITIVE TRAFFIC]

FROM

ST. LOUIS, EAST ST. LOUIS, AND CAPE GIRARDEAU

TO

MEMPHIS, HELENA, GREENVILLE, VICKSBURG, NATCHEZ, BATON ROUGE, PLAQUEMINE, DONALDSONVILLE, AND NEW ORLEANS

| Rates in Cents per Hundred Pounds | | | | | | | | | | | | | | | | | | | | | | | | Rates per Bbl. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Classes | | | | | | | | | | | | | | | | | | | | | | | | Classes | |
| 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | A | | B | | C | | D | | E | | H | | F | |
| R* | B* | R | B | R | B | R | B | R | B | R | B | R | B | R | B | R | B | R | B | R | B | R | B | R | B |
| 65 | 50 | 50 | 40 | 45 | 35 | 35 | 25 | 30 | 20 | 25 | 18 | 15 | 10 | 26 | 19 | 15 | 10 | 12 | 8 | 20 | 15 | 42 | 32 | 30 | 20 |
| 90 | 60 | 75 | 50 | 65 | 45 | 50 | 35 | 40 | 30 | 35 | 25 | 25 | 18 | 31 | 20 | 25 | 18 | 20 | 15 | 28 | 20 | 57 | 40 | 45 | 35 |
| 90 | 60 | 75 | 50 | 65 | 45 | 50 | 35 | 40 | 30 | 35 | 25 | 25 | 18 | 38 | 21 | 25 | 18 | 20 | 15 | 28 | 20 | 57 | 40 | 45 | 35 |
| From Cairo to Same Points | | | | | | | | | | | | | | | | | | | | | | | | | |
| 50 | 40 | 38 | 30 | 35 | 26 | 27 | 20 | 23 | 16 | 19 | 13 | 11 | 7 | 21 | 15 | 10 | 6 | 9 | 5·5 | 15 | 10 | 32 | 22 | 20 | 15 |
| 75 | 50 | 63 | 40 | 55 | 35 | 42 | 26 | 33 | 23 | 29 | 20 | 21 | 15 | 26 | 22 | 20 | 15 | 15 | 10 | 23 | 16 | 47 | 35 | 35 | 25 |
| 75 | 50 | 63 | 40 | 55 | 35 | 42 | 26 | 33 | 23 | 29 | 20 | 21 | 15 | 32 | 19 | 20 | 15 | 15 | 10 | 23 | 16 | 47 | 35 | 35 | 25 |

* R is an abbreviation for rail rates; B, for boat rates.

| Commodities and Carload Weights in Pounds or Tons | TO | Commodity Rates in Cents per Hundred Pounds Unless Otherwise Shown | | | |
|---|---|---|---|---|---|
| | | FROM | | | |
| | | St. Louis, East St. Louis, and Cape Girardeau | | Cairo | |
| | | R | B | R | B |
| Acid in iron drums (30,000) | Memphis | 20 | 13 | 15 | 8 |
| | New Orleans* | 30 | 22 | 24 | 15 |
| Agricultural implements, sixth class | Memphis | 18 | 13 | 13 | 9 |
| | New Orleans | 31 | 22 | 25 | 18 |
| Agricultural implements, harvesting machinery | Memphis | 25 | 18 | 19 | 12 |
| | New Orleans | 35 | 24 | 29 | 20 |
| Asphalt and asphaltum | Memphis | 10.5 | 8 | 10.5 | 8 |
| | New Orleans | 15 | 12 | 13 | 10 |
| Axes (boxed) | Memphis | 35 | 25 | 27 | 18 |
| | New Orleans | 45 | 35 | 37 | 25 |
| Axle grease (24,000) | Memphis | 20 | 15 | 15 | 10 |
| | New Orleans | 30 | 20 | 24 | 15 |
| Bagging, jute (30,000) | Memphis | 10 | 7.5 | 5 | .. |
| | New Orleans | 15 | 11 | 10 | 10 |
| Bags, burlap (30,000) | Memphis | 15 | 11 | 10 | 8 |
| Baking powder (24,000) | Memphis | 28 | 20 | 21 | 15 |
| | New Orleans | 38 | 30 | 31 | 25 |
| Baking powder (any quantity) | Memphis | 45 | 30 | 35 | 25 |
| | New Orleans | 65 | 40 | 55 | 35 |
| Bicarbonate of soda (24,000) | Memphis | 17 | 12.5 | 12 | 12.5 |
| | New Orleans | 25 | 20 | 20 | 20 |
| Bicarbonate of soda (any quantity) | Memphis | 30 | 20 | 23 | 20 |
| | New Orleans | 40 | 30 | 33 | 30 |
| Barytes (40,000) | Memphis | 15 | 11 | 10 | 8 |
| | New Orleans | 20 | 15 | 15 | 12 |
| Beer (24,000) | Memphis | 14 | 11 | 4 | 8 |
| | New Orleans | 22 | 16 | 17 | 12 |

* Helena, Greenville, Vicksburg, Natchez, Baton Rouge, Plaquemine, and Donaldsonville take same rates as New Orleans.

| Commodities and Carload Weights in Pounds or Tons | Commodity Rates in Cents per Hundred Pounds Unless Otherwise Shown | | | | |
|---|---|---|---|---|---|
| | | FROM | | | |
| | TO | St. Louis, East St. Louis, and Cape Girardeau | | Cairo | |
| | | R | B | R | B |
| Boxes, paper (30,000) | Memphis | 25 | 18 | 19 | 13 |
| | New Orleans* | 35 | 28 | 29 | 22 |
| Brass goods (carload) | Memphis | 32 | 22 | 25 | 16 |
| | New Orleans | 48 | 38 | 40 | 30 |
| Brass goods (any quantity) | Memphis | 45 | 30 | 35 | 25 |
| | New Orleans | 63 | 50 | 53 | 41 |
| Bread, crackers (24,000) | Memphis | 25 | 18 | 19 | 13 |
| | New Orleans | 35 | 25 | 29 | 20 |
| Butter and cheese (any quantity) | Memphis | 50 | 40 | 38 | 30 |
| | New Orleans | 75 | 50 | 63 | 40 |
| Calcium chloride (30,000) | Memphis | 15 | 11 | 10 | 8 |
| | New Orleans | 20 | 15 | 15 | 13 |
| Candles (any quantity) | Memphis | 25 | 18 | 19 | 13 |
| | New Orleans | 35 | 28 | 29 | 22 |
| Canned goods (30,000) | Memphis | 20 | 13 | 15 | 10 |
| | New Orleans | 30 | 20 | 24 | 16 |
| Canned goods (any quantity) | Memphis | 35 | 25 | 27 | 19 |
| | New Orleans | 50 | 35 | 42 | 31 |
| Cars, plantation (24,000) | Memphis | 17 | 11 | 12 | 8 |
| | New Orleans | 27 | 20 | 22 | 16 |
| Cement, portland or natural (40,000) | Memphis | 9 | 6 | 9 | 5 |
| | New Orleans | 12.5 | 10 | 10.5 | 9 |
| Compounds, floor sweeping (40,000) | Memphis | 16 | 11 | 11 | 8 |
| | New Orleans | 25 | 18 | 20 | 14 |
| Conduits, cement and clay (30,000) | Memphis | 13 | 8 | 8 | 5 |
| | New Orleans | 21 | 14 | 16 | 11 |
| Copperas (40,000) | Memphis | 14 | 10 | 9 | 8 |
| | New Orleans | 20 | 15 | 15 | 12 |

| | | | | | |
|---|---|---|---|---|---|
| Cotton, compressed | New Orleans only | 30 | 20 | .. | .. |
| Drugs and medicines (30,000) | Memphis | 50 | 35 | 38 | 25 |
| | New Orleans* | 75 | 50 | 63 | 40 |
| Earthenware (24,000) | Memphis | 20 | 18 | 15 | 10 |
| | New Orleans | 30 | 20 | 24 | 18 |
| Stoneware (30,000) | Memphis | 17 | 12 | 19 | 8 |
| Fertilizer (24,000), rates per short ton | Memphis | 200 | 150 | 100 | 150 |
| | New Orleans | 305 | 250 | 205 | 250 |
| Fertilizer (any quantity), rates per short ton | Memphis | 240 | 200 | 120 | 200 |
| | New Orleans | 366 | 300 | 246 | 300 |
| Furniture (20,000) | Memphis | 35 | 25 | 27 | 20 |
| | New Orleans | 43 | 30 | 35 | 28 |
| Chair and settee frames (8,000) | Memphis | 45 | 35 | 35 | 25 |
| | New Orleans | 65 | 45 | 55 | 40 |
| Chair stock (24,000) | Memphis | 26 | 18 | 20 | 14 |
| Kitchen safes (20,000) | Memphis | 35 | 25 | 27 | 20 |
| | New Orleans | 43 | 30 | 35 | 28 |
| Kitchen safes (30,000) | Memphis | 25 | 18 | 19 | 13 |
| | New Orleans | 35 | 25 | 29 | 20 |
| Kitchen safes, wood and tin (24,000) | Memphis | 27 | 19 | 21 | 15 |
| | New Orleans | 40 | 28 | 33 | 21 |
| Refrigerators (16,000) | Memphis | 35 | 25 | 27 | 20 |
| | New Orleans | 50 | 35 | 42 | 32 |
| Tables unfinished (30,000) | Memphis | 25 | 18 | 19 | 13 |
| | New Orleans | 35 | 25 | 29 | 20 |
| Furniture not otherwise specified (12,000) | Memphis | 35 | 25 | 27 | 20 |
| | New Orleans | 50 | 35 | 42 | 32 |
| Glass and glassware (24,000) | Memphis | 20 | 14 | 15 | 10 |
| | New Orleans | 30 | 20 | 24 | 18 |
| Bottles and fruit jars (any quantity) | Memphis | 30 | 20 | 23 | 16 |
| | New Orleans | 45 | 30 | 37 | 28 |
| Glassware not otherwise specified (24,000) | Memphis | 35 | 25 | 27 | 20 |
| | New Orleans | 45 | 30 | 37 | 25 |
| Glass, rough, under 1 foot (24,000) | Memphis | 23 | 17 | 17 | 12 |
| | New Orleans | 40 | 25 | 33 | 20 |

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* Helena, Greenville, Vicksburg, Natchez, Baton Rouge, Plaquemine, and Donaldsonville take same rates as New Orleans.

| COMMODITIES AND CARLOAD WEIGHTS IN POUNDS OR TONS | COMMODITY RATES IN CENTS PER HUNDRED POUNDS UNLESS OTHERWISE SHOWN | | | | |
|---|---|---|---|---|---|
| | TO | FROM | | | |
| | | St. Louis, East St. Louis, and Cape Girardeau | | Cairo | |
| | | R | B | R | B |
| Window glass, not plate (24,000) | Memphis | 23 | 17 | 17 | 12 |
| | New Orleans* | 33 | 25 | 27 | 20 |
| Glucose and glucose syrup (35,000) | Memphis | 12 | 8 | . . | . . |
| | New Orleans | 16 | 12 | . . | . . |
| Glue (30,000) | Memphis | 27 | 20 | 21 | 14 |
| | New Orleans | 37 | 28 | 31 | 24 |
| Flour (30,000) | Memphis | 11 | 7.5 | 8.5 | 7.5 |
| | New Orleans | 18 | 12 | 14 | 10 |
| | Helena | 16 | 10 | 11 | 7.5 |
| Flour (any quantity) | Memphis | 15 | 11 | 10 | 9 |
| | New Orleans | 22.5 | 17 | 17.5 | 12 |
| Food preparation, oatmeal, and cereals (any quantity) | Memphis | 20 | 14 | 15 | 10 |
| | New Orleans | 30 | 20 | 24 | 18 |
| Granite ware (20,000) | Memphis | 35 | 18 | 27 | 13 |
| | New Orleans | 43 | 25 | 35 | 20 |
| Gypsum blocks (60,000) | New Orleans | 14.5 | 11 | 9.5 | 7.5 |
| Handles, wooden (24,000) | Memphis | 17 | 12.5 | 15 | 10 |
| | New Orleans | 28 | 20 | 25 | 18 |
| Hardware and mechanics' tools not otherwise specified | Memphis | 50 | 32 | 38 | 28 |
| | New Orleans | 75 | 47 | 63 | 40 |
| Hemp | Memphis | 30 | 20 | 23 | 17 |
| | New Orleans | 40 | 30 | 33 | 26 |
| Special iron (24,000) | Memphis | 13 | 9 | 8 | 7 |
| | New Orleans | 22 | 15 | 17 | 13 |
| Special iron (any quantity) | Memphis | 20 | 14 | 15 | 10 |
| | New Orleans | 30 | 20 | 25 | 18 |

| | | | | | |
|---|---|---|---|---|---|
| Chains, iron (30,000) | Memphis | 13 | 9 | 8 | 7 |
| | New Orleans | 22 | 15 | 17 | 13 |
| Cups, galvanized (30,000) | Memphis | 25 | 18 | 19 | 14 |
| | New Orleans | 35 | 25 | 29 | 20 |
| Enameling plate (24,000) | New Orleans | 24 | 18 | 19 | 14 |
| Enameling plate (any quantity) | New Orleans | 34 | 25 | 28 | 20 |
| Handles, iron (24,000) | Memphis | 13 | 9 | 8 | 7 |
| | New Orleans | 22 | 15 | 17 | 13 |
| Handles (any quantity) | Memphis | 20 | 14 | 15 | 10 |
| | New Orleans | 30 | 20 | 25 | 18 |
| Nails (40,000) | Memphis | 13 | 9 | 8 | 7 |
| | New Orleans | 22 | 15 | 17 | 13 |
| Plows and parts | Memphis | 13 | 8 | 8 | 5 |
| | New Orleans | 22 | 15 | 17 | 11 |
| Plows and parts (any quantity) | Memphis | 20 | 15 | 15 | 12 |
| | New Orleans | 30 | 20 | 25 | 18 |
| Rails, iron or steel (20 gross tons) | Memphis | 200 | 140 | 133 | 100 |
| | New Orleans | 265 | 200 | 225 | 160 |
| Shoes, horse (40,000) | Memphis | 13 | 9 | 8 | 7 |
| | New Orleans | 22 | 15 | 17 | 13 |
| Strap hinges | Memphis | 14 | 10 | 9 | 8 |
| | New Orleans | 23 | 16 | 18 | 12 |
| Strap hinges (any quantity) | Memphis | 21 | 16 | 16 | 11 |
| | New Orleans | 32 | 24 | 26 | 19 |
| Track material, railway (24,000) | Memphis | 13 | 9 | 8 | 7 |
| | New Orleans | 22 | 15 | 17 | 13 |
| Wire, cable, telegraph, and telephone (24,000) | Memphis | 25 | 18 | 19 | 13 |
| | New Orleans | 35 | 25 | 29 | 20 |
| Wire, hoops in bundles (40,000) | Memphis | 13 | 9 | 8 | 7 |
| | New Orleans | 22 | 15 | 17 | 13 |
| Wire, hoops in bundles (any quantity) | Memphis | 20 | 15 | 15 | 10 |
| | New Orleans | 30 | 20 | 25 | 18 |
| Wire, plain or galvanized (40,000) | Memphis | 13 | 9 | 8 | 7 |
| | New Orleans | 22 | 15 | 17 | 13 |
| Lead (30,000) | Memphis | 17 | 11 | 12 | 8 |
| | New Orleans | 25 | 18 | 20 | 14 |

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* **Helena, Greenville, Vicksburg, Natchez, Baton Rouge, Plaquemine, and Donaldsonville take same rates as New Orleans.**

| Commodities and Carload Weights in Pounds or Tons | To | Commodity Rates in Cents per Hundred Pounds Unless Otherwise Shown | | | |
|---|---|---|---|---|---|
| | | From | | | |
| | | St. Louis, East St. Louis, and Cape Girardeau | | Cairo | |
| | | R | B | R | B |
| Shot (30,000) | Memphis | 17 | 11 | 12 | 8 |
| | New Orleans* | 25 | 18 | 20 | 14 |
| Leather, sole | New Orleans | 65 | 45 | 55 | 35 |
| Liquors (any quantity) | Memphis | 25 | 18 | 19 | 12.5 |
| | New Orleans | 40 | 25 | 33 | 20 |
| Whisky, in glass (any quantity) | New Orleans | 49 | 35 | 41 | 27 |
| Lye, concentrated (30,000) | Memphis | 16 | 11 | 11 | 9 |
| | New Orleans | 27 | 20 | 22 | 18 |
| Macaroni (24,000) | Memphis | 30 | 20 | 23 | 15 |
| | New Orleans | 35 | 25 | 29 | 20 |
| Marble, blocks (30,000) | Memphis | 14 | 9.5 | 9 | 7 |
| | New Orleans | 23 | 17 | 18 | 14 |
| Monuments (30,000) | Memphis | 20 | 14 | 15 | 10 |
| | New Orleans | 30 | 20 | 24 | 17 |
| Matches (24,000) | Memphis | 25 | 18 | 19 | 13 |
| | New Orleans | 40 | 30 | 33 | 24 |
| Oilcloth (24,000) | Memphis | 37 | 26 | 29 | 20 |
| Oils, cotton seed (carload) | Memphis | 16 | 11 | 11 | 9 |
| Oils, cotton seed (any quantity) | New Orleans | 30 | 20 | 24 | 17 |
| Oils, coal tar (30,000) | Memphis | 15 | 10 | 10 | 8 |
| | New Orleans | 17 | 11 | 12 | 10 |
| Oils, coal tar (any quantity) | Memphis | 22 | 15 | 17 | 12 |
| | New Orleans | 30 | 20 | 24 | 18 |
| Oils, corn, in barrels (30,000) | Memphis | 17 | 11 | 12 | 8 |
| | New Orleans | 22 | 15 | 17 | 11 |
| Oils, corn, in barrels (any quantity) | Memphis | 24 | 17 | 18 | 12 |
| | New Orleans | 32 | 22 | 26 | 18 |

| | | | | | |
|---|---|---|---|---|---|
| Oils, creosote (30,000) | Memphis | 15 | 11 | 10 | 8 |
| | New Orleans | 17 | 12 | 12 | 10 |
| Oils, creosote (any quantity) | Memphis | 22 | 15 | 17 | 11 |
| | New Orleans | 30 | 20 | 24 | 17 |
| Oils, linseed (any quantity) | Memphis | 24 | 17 | 18 | 12 |
| | New Orleans | 32 | 22 | 26 | 19 |
| Packages, barrels and half barrels (20,000) | Memphis | 20 | 14 | 15 | 10 |
| | New Orleans | 30 | 20 | 24 | 18 |
| Packing-house products (24,000) | Memphis | 21 | 15 | 16 | 11 |
| | New Orleans | 33 | 21 | 27 | 19 |
| | Helena | 26 | 18 | 21 | 15 |
| Packing-house products (any quantity) | Memphis | 26 | 18 | 21 | 15 |
| | New Orleans | 38 | 27 | 32 | 21 |
| | Helena | 31 | 21 | 26 | 18 |
| Paints (30,000) | Memphis | 16 | 11 | 11 | 9 |
| | New Orleans | 22 | 16 | 17 | 13 |
| Paint, dry earth (30,000) | Memphis | 10 | 7 | 5 | 3.5 |
| | New Orleans | 22 | 15 | 17 | 11.5 |
| Paint, dry or mixed (30,000) | Memphis | 16 | 11 | 11 | 9 |
| | New Orleans | 22 | 16 | 17 | 13 |
| Paint, dry or mixed (any quantity) | Memphis | 25 | 18 | 19 | 13 |
| | New Orleans | 35 | 25 | 29 | 20 |
| Mineral, made of ore (30,000) | Memphis | 16 | 11 | 11 | 9 |
| | New Orleans | 22 | 16 | 17 | 13 |
| Mineral, made of ore (any quantity) | Memphis | 22 | 15 | 17 | 11 |
| | New Orleans | 30 | 20 | 24 | 18 |
| Putty (any quantity) | Memphis | 25 | 18 | 19 | 13 |
| | New Orleans | 35 | 25 | 29 | 20 |
| White and red lead (30,000) | Memphis | 16 | 11 | 11 | 9 |
| | New Orleans | 22 | 16 | 17 | 13 |
| White and red lead (any quantity) | Memphis | 25 | 18 | 19 | 13 |
| | New Orleans | 35 | 25 | 29 | 20 |
| Ochre (40,000) | Memphis | 12 | 9 | 7 | 6 |
| Paper, not otherwise specified (30,000) | Memphis | 18 | 12 | 13 | 9 |
| | New Orleans | 28 | 19 | 23 | 16 |
| Paper tablets and envelopes (24,000) | Memphis | 27 | 19 | 21 | 15 |
| | New Orleans | 33 | 21 | 27 | 19 |

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* Helena, Greenville, Vicksburg, Natchez, Baton Rouge, Plaquemine, and Donaldsonville take same rates as New Orleans.

| COMMODITIES AND CARLOAD WEIGHTS IN POUNDS OR TONS | TO | COMMODITY RATES IN CENTS PER HUNDRED POUNDS UNLESS OTHERWISE SHOWN | | | |
|---|---|---|---|---|---|
| | | FROM | | | |
| | | St. Louis, East St. Louis, and Cape Girardeau | | Cairo | |
| | | R | B | R | B |
| Patterns, wooden or metallic (20,000) | Memphis | 65 | 45 | 50 | 35 |
| | New Orleans* | 90 | 60 | 75 | 50 |
| Peanuts (24,000) | Memphis | 20 | 14 | 15 | 10 |
| | New Orleans | 25 | 18 | 20 | 14 |
| Peanuts (any quantity) | Memphis | 35 | 25 | 27 | 19 |
| | New Orleans | 45 | 35 | 37 | 26 |
| Pepper (24,000) | Memphis | 35 | 25 | 27 | 19 |
| | New Orleans | 50 | 40 | 42 | 32 |
| Plaster, wall (40,000) | Memphis | 9 | 7.5 | .. | .. |
| | New Orleans | 13.5 | 11 | .. | .. |
| Plaster board and plaster (40,000) | Memphis | 12 | 9 | 8 | 7 |
| | New Orleans | 16.5 | 12 | 11.5 | 9 |
| Plumbers' material (30,000) | Memphis | 30 | 20 | 23 | 16 |
| | New Orleans | 40 | 30 | 33 | 24 |
| Roofing and building felt (30,000) | Memphis | 15 | 10 | 10 | 8 |
| | New Orleans | 20 | 14 | 15 | 12 |
| Rope, sisal (30,000) | New Orleans | 15 | 11 | 10 | 8 |
| Rope (any quantity) | Memphis | 25 | 18 | 19 | 13 |
| | New Orleans | 35 | 25 | 29 | 20 |
| Rope, cotton (24,000) | Memphis | 25 | 18 | 19 | 12 |
| | New Orleans | 35 | 25 | 29 | 20 |
| Sacks, cocoanut (any quantity) | New Orleans | 25 | 18 | 20 | 14 |
| Salt (30,000) | New Orleans | 16.33 | 12 | 12.33 | 10 |
| Scales (24,000) | Memphis | 30 | 20 | 23 | 16 |
| | New Orleans | 40 | 30 | 33 | 24 |
| Seed, garden (24,000) | Memphis | 28 | 20 | 21 | 15 |
| | New Orleans | 38 | 30 | 31 | 20 |

| | | | | | |
|---|---|---|---|---|---|
| Sewer pipe (25,000) | Memphis | 13 | 9 | 8 | 7 |
| | New Orleans | 18 | 13 | 13 | 10 |
| Soap and washing compounds (30,000) | Memphis | 13 | 9 | 8 | 7 |
| | New Orleans | 25 | 18 | 20 | 14 |
| Soap and washing compounds (any quantity) | Memphis | 20 | 14 | 15 | 12 |
| | New Orleans | 33 | 24 | 27 | 20 |
| Soda, bicarbonate of (30,000) | Memphis | 17 | 12.5 | 12 | 9 |
| | New Orleans | 25 | 20 | 20 | 14 |
| Soda (any quantity) | Memphis | 30 | 20 | 23 | 15 |
| | New Orleans | 40 | 30 | 33 | 25 |
| Soda ash (30,000) | New Orleans | 25 | 17.5 | 16.5 | 12.5 |
| Soda, caustic (30,000) | Memphis | 15 | 10 | 10 | 8 |
| | New Orleans | 20 | 14 | 15 | 12 |
| Starch (24,000) | Memphis | 20 | 14 | 15 | 10 |
| | New Orleans | 30 | 20 | 24 | 17 |
| Stone (40,000) | Memphis | 10 | 7 | . . | . . |
| | New Orleans | 18 | 14 | 13 | 11 |
| Stoves and stove furniture (24,000) | Memphis | 25 | 18 | 28 | 14 |
| | New Orleans | 35 | 25 | 29 | 20 |
| Radiators (24,000) | Memphis | 25 | 18 | 20 | 14 |
| | New Orleans | 35 | 25 | 29 | 20 |
| Radiators (any quantity) | Memphis | 40 | 30 | 33 | 24 |
| | New Orleans | 50 | 40 | 43 | 32 |
| Stoves and ranges (20,000) | Memphis | 25 | 18 | 20 | 14 |
| | New Orleans | 35 | 25 | 29 | 20 |
| Stone hollow-ware (20,000) | Memphis | 25 | 18 | 20 | 14 |
| | New Orleans | 35 | 25 | 29 | 20 |
| Stone hollow-ware (any quantity) | Memphis | 40 | 30 | 33 | 24 |
| | New Orleans | 50 | 40 | 43 | 32 |
| Tar and pitch (40,000) | Memphis | 15 | 11 | 10 | 8 |
| | New Orleans | 20 | 15 | 15 | 12 |
| Tar, coal (40,000) | Memphis | 10.5 | 7.5 | 10.5 | 7.5 |
| | New Orleans | 15 | 11 | 13 | 10 |
| Terra cotta (24,000) | Memphis | 22 | 16 | 17 | 11 |
| | New Orleans | 32 | 21 | 26 | 19 |
| Tile (40,000) | Memphis | 13 | 9 | 8 | 7 |
| | New Orleans | 18 | 14 | 13 | 10 |

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*** Helena, Greenville, Vicksburg, Natchez, Baton Rouge, Plaquemine, and Donaldsonville take same rates as New Orleans.**

| Commodities and Carload Weights in Pounds or Tons | Commodity Rates in Cents per Hundred Pounds Unless Otherwise Shown | | | | |
|---|---|---|---|---|---|
| | TO | FROM | | | |
| | | St. Louis, East St. Louis, and Cape Girardeau | | Cairo | |
| | | R | B | R | B |
| Tin plate | Memphis | 16 | 11 | 11 | 9 |
| | New Orleans* | 24 | 18 | 19 | 15 |
| Tobacco, plug or twist | Memphis | 35 | 25 | 27 | 20 |
| | New Orleans | 45 | 35 | 37 | 30 |
| Tobacco, smoking | Memphis | 50 | 40 | 38 | 30 |
| | New Orleans | 65 | 45 | 65 | 35 |
| Tobacco, unmanufactured | Memphis | 20 | 14 | 15 | 10 |
| | New Orleans | 27 | 19 | 22 | 15 |
| Tobacco stems | Memphis | 15 | 10 | 10 | 8 |
| | New Orleans | 25 | 18 | 20 | 15 |
| Toys | Memphis | 45 | 35 | 35 | 25 |
| | New Orleans | 65 | 45 | 55 | 35 |
| Trunks, nested (any quantity) | Memphis | 50 | 40 | 38 | 30 |
| | New Orleans | 75 | 50 | 63 | 45 |
| Trunks, empty (any quantity) | Memphis | 50 | 40 | 38 | 30 |
| | New Orleans | 75 | 50 | 63 | 45 |
| Varnish (any quantity) | Memphis | 25 | 18 | 19 | 13 |
| | New Orleans | 35 | 25 | 29 | 20 |
| Vegetables and fruits as follows: | | | | | |
| Apples, dried (24,000) | New Orleans | 35 | 25 | 29 | 20 |
| Beans and peas, dried (24,000) | Memphis | 22 | 16 | 17 | 11 |
| | New Orleans | 30 | 20 | 24 | 17 |
| Cranberries (24,000) | Memphis | 35 | 25 | 27 | 20 |
| | New Orleans | 50 | 40 | 42 | 32 |
| Pickles (24,000) | Memphis | 22 | 16 | 17 | 11 |
| | New Orleans | 30 | 20 | 24 | 17 |

| | | | | | |
|---|---|---|---|---|---|
| Pickles, vinegar (24,000) | Memphis | 30 | 20 | 23 | 16 |
| | New Orleans | 40 | 30 | 33 | 24 |
| Vehicles, carts and wagons (24,000) | Memphis | 21 | 15 | 16 | 11 |
| | New Orleans | 31 | 21 | 25 | 18 |
| Vehicle material (24,000) | Memphis | 18 | 12 | 13 | 9 |
| | New Orleans | 28 | 20 | 23 | 16 |
| Singletrees and doubletrees | Memphis | 24 | 16 | 18 | 12 |
| Vinegar and cider (24,000) | Memphis | 18 | 12 | 13 | 9 |
| | New Orleans | 28 | 20 | 23 | 16 |
| Water, mineral (30,000) | Memphis | 20 | 14 | 15 | 10 |
| | New Orleans | 28 | 20 | 25 | 16 |
| Water, mineral (any quantity) | Memphis | 30 | 20 | 23 | 16 |
| | New Orleans | 40 | 30 | 33 | 24 |
| Wheelbarrows (24 000) | Memphis | 23 | 16 | 17 | 11 |
| | New Orleans | 33 | 24 | 27 | 20 |
| Woodenware (20,000) | Memphis | 25 | 18 | 19 | 13 |
| | New Orleans | 35 | 25 | 29 | 20 |
| Buckets and pails (15,000 or 20,000) | Memphis | 25 | 18 | 19 | 13 |
| | New Orleans | 35 | 25 | 29 | 20 |
| Wool, mineral (24,000) | Memphis | 25 | 18 | 19 | 13 |
| | New Orleans | 35 | 25 | 29 | 20 |

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*** Helena, Greenville, Vicksburg, Natchez, Baton Rouge, Plaquemine, and Donaldsonville take same rates as New Orleans.**

## TARIFF NO. 2 OF THE MISSISSIPPI VALLEY TRANSPORTATION COMPANY

EFFECTIVE JUNE 15, 1911

COMPARED WITH CORRESPONDING RAIL RATES PUBLISHED BY THE ILLINOIS CENTRAL RAILROAD

FROM
MEMPHIS
TO
HELENA, GREENVILLE, VICKSBURG, NATCHEZ, BATON ROUGE, PLAQUEMINE, DONALDSONVILLE, AND NEW ORLEANS

| | RATES IN CENTS PER HUNDRED POUNDS | | | | | | | | | | | | | | | | | | | | | | | | RATES PER BBL. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Classes | | | | | | | | | | | | | | | | | | | | | | | | Classes | |
| | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | A | | B | | C | | D | | E | | H | | F | |
| | R | B | R | B | R | B | R | B | R | B | R | B | R | B | R | B | R | B | R | B | R | B | R | B | R | B |
| * | 45 | 30 | 40 | 25 | 32 | 20 | 25 | 18 | 20 | 13 | 17 | 11 | 12 | 8 | 18 | 12 | 14 | 9 | 12 | 8 | 15 | 10 | 18 | 12 | 15 | 12 |
| † | 45 | 30 | 40 | 25 | 32 | 20 | 25 | 18 | 20 | 13 | 17 | 11 | 12 | 8 | 18 | 12 | 14 | 9 | 12 | 8 | 15 | 10 | 18 | 12 | 18 | 12 |

* To Helena.

† To Greenville, Vicksburg, Natchez, Baton Rouge, Plaquemine, Donaldsonville, and New Orleans.

| COMMODITIES AND CARLOAD WEIGHTS IN POUNDS OR TONS | COMMODITY RATES IN CENTS PER HUNDRED POUNDS UNLESS OTHERWISE SHOWN | | | |
|---|---|---|---|---|
| | To New Orleans † | | To Helena | |
| | R | B | R | B |
| Ale, beer, porter, and stout | 20 | 14 | 20 | 14 |
| Bags, burlap (24,000) | 12 | 8 | 12 | 8 |
| Bags (any quantity) | 15 | 10 | 15 | 10 |
| Bagging, jute (30,000) | 10 | 8 | 12 | 8 |
| Baking powder | 32 | 20 | 25 | 18 |
| Beef and pork, in barrels | 36 | 30 | 35 | 27 |
| Boots and shoes | 45 | 25 | 25 | 18 |
| Candles | 20 | 14 | 15 | 10 |
| Canned goods (30,000) | 15 | 10 | 10 | 8 |
| Canned goods (any quantity) | 25 | 18 | 15 | 10 |
| Cement and cement plaster (30,000) | 10 | 7 | 8 | 7 |
| Cheese (any quantity) | 32 | 20 | 25 | 18 |
| Cotton in round bales (to New Orleans only) | 20 | 15 | .. | .. |
| Cotton, square bales, compressed (any quantity) | 20 | 15 | .. | .. |
| Cotton, square bales, uncompressed (any quantity, to New Orleans only) | 30 | 25 | .. | .. |
| Cotton-factory products | .. | .. | 20 | 14 |
| Cotton-seed meal and hulls (30,000), rates per ton | 210 | 160 | .. | .. |
| Cotton ties (500 bundles) | 12 | 8 | 9 | 6 |
| Cotton ties (any quantity) | 12 | 9 | 10 | 7 |
| Dry goods | .. | .. | 25 | 18 |
| Earthenware | 17 | 11 | 15 | 10 |
| Emigrant outfit | 45 | 30 | .. | .. |
| Fertilizers (30,000), rates per ton, except first column | 19.5 | 150 | 150 | 125 |
| Fruits, tropical | .. | .. | 20 | 14 |
| Furniture | 25 | 18 | 25 | 18 |
| Iron bedsteads | 25 | 18 | 25 | 18 |
| Glassware, bottles, etc. (24,000) | 25 | 15 | 15 | 10 |
| Glassware and bottles (any quantity) | 25 | 18 | 20 | 14 |

† Greenville, Vicksburg, Natchez, Baton Rouge, Plaquemine, and Donaldsonville take same rates as New Orleans.

| COMMODITIES AND CARLOAD WEIGHTS IN POUNDS OR TONS | COMMODITY RATES IN CENTS PER HUNDRED POUNDS UNLESS OTHERWISE SHOWN | | | |
|---|---|---|---|---|
| | To New Orleans † | | To Helena | |
| | R | B | R | B |
| Iron articles, special (24,000) | 12 | 8 | 12 | 8 |
| Iron articles (any quantity) | 17 | 11 | 17 | 11 |
| Iron, scrap (40,000) | 10 | 8 | 17 | 8 |
| Nails (40,000) | 12 | 8 | 12 | 8 |
| Nails, per keg (any quantity) | 17 | 9 | 12 | 9 |
| Rails, iron or steel (24,000), rates per ton | 212 | 160 | .. | .. |
| Rails, steel (30,000) | .. | .. | 200 | 140 |
| Shoes, horse | 12 | 8 | 12 | 8 |
| Wire (40,000) | 12 | 8 | 12 | 8 |
| Wire (any quantity) | 17 | 14 | 12 | 12 |
| Lime, per barrel | .. | .. | 20 | 14 |
| Liquors | .. | .. | 25 | 18 |
| Louisiana products, namely: | | | | |
| Coffee (30,000) | 17 | 12 | 17 | 12 |
| Coffee (any quantity) | 20 | 15 | 20 | 15 |
| Molasses and syrup | 10 | 8 | 10 | 8 |
| Rice, clean | 10 | 7 | 10 | 7 |
| Rice (any quantity) | 15 | 11 | 12 | 8 |
| Sugar | 10 | 8 | .. | .. |
| Sugar (any quantity) | 15 | 11 | .. | .. |
| Oil, linseed, per barrel | 60 | 40 | .. | .. |
| Packages of barrels (12,000) | 20 | 14 | .. | .. |
| Paints, dry earth (30,000) | 13 | 9 | .. | .. |
| Paints, mineral (30,000) | 13 | 8 | .. | .. |
| Paints, mineral (any quantity) | 17 | 11 | .. | .. |
| Paints, dry or mixed (30,000) | 13 | 9 | .. | .. |
| Paints, dry or mixed (any quantity) | 22 | 15 | .. | .. |
| White and red lead (30,000) | 13 | 9 | .. | .. |
| White and red lead (any quantity) | 22 | 15 | .. | .. |

| | | | | |
|---|---|---|---|---|
| Ochre (30,000) | 13 | 9 | .. | .. |
| Ochre (any quantity) | 17 | 11 | .. | .. |
| Putty (any quantity) | 22 | 15 | .. | .. |
| Pumps, wooden (24,000) | .. | .. | 10 | 8 |
| Salt (30,000) | 9 | 7 | 9 | 7 |
| Salt (any quantity) | 12 | 9 | 12 | 8 |
| Soap, laundry | 15 | 11 | 12 | 8 |
| Soda (any quantity) | .. | .. | 15 | 10 |
| Starch (any quantity) | 17 | 13 | 15 | 10 |
| Stoves and ranges (24,000) | 17 | 13 | 15 | 10 |
| Stoves and ranges (any quantity) | 22 | 17 | 17 | 12 |
| Radiators (24,000) | 17 | 13 | 15 | 10 |
| Radiators (any quantity) | 22 | 17 | 17 | 12 |
| Tobacco, plug | 24 | 18 | 20 | 15 |
| Trunks, valises, etc | 32 | 22 | 25 | 20 |
| Trunks, empty (any quantity) | 40 | 30 | 32 | 25 |
| Vegetables: | | | | |
| Apples, cabbage, etc. (24,000) | 12 | 9 | 12 | 9 |
| Apples, cabbage, etc. (any quantity) | 15 | 11 | 15 | 11 |
| Cabbage, per crate | .. | .. | 25 | 20 |
| Cabbage and potatoes, per barrel | .. | .. | 21 | 14 |
| Vinegar (24,000) | 15 | 11 | .. | .. |
| Water, mineral | .. | .. | 15 | 11 |
| Woodenware | 20 | 16 | 20 | 16 |

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† Greenville, Vicksburg, Natchez, Baton Rouge, Plaquemine, and Donaldsonville take same rates as New Orleans.

## TARIFF NO. 3 OF THE MISSISSIPPI VALLEY TRANSPORTATION COMPANY

EFFECTIVE JUNE 15, 1911

COMPARED WITH CORRESPONDING RATES PUBLISHED BY THE ILLINOIS CENTRAL RAILROAD

FROM
NEW ORLEANS
TO
MEMPHIS, HELENA, GREENVILLE, VICKSBURG, AND NATCHEZ

| RATES IN CENTS PER HUNDRED POUNDS | | | | | | | | | | | | | | | | | | | | | | | | RATES PER BBL. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Classes | | | | | | | | | | | | | | | | | | | | | | | | Classes | |
| 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | A | | B | | C | | D | | E | | H | | F | |
| R | B | R | B | R | B | R | B | R | B | R | B | R | B | R | B | R | B | R | B | R | B | R | B | R | B |
| 45 | 30 | 40 | 25 | 32 | 20 | 25 | 18 | 20 | 13 | 17 | 11 | 12 | 8 | 18 | 10 | 14 | 9 | 12 | 8 | 15 | 10 | 18 | 12 | 18 | 12 |

| COMMODITIES AND CARLOAD WEIGHTS IN POUNDS OR TONS | COMMODITY RATES IN CENTS PER HUNDRED POUNDS EXCEPT AS OTHERWISE SHOWN | | COMMODITIES AND CARLOAD WEIGHTS IN POUNDS OR TONS | COMMODITY RATES IN CENTS PER HUNDRED POUNDS EXCEPT AS OTHERWISE SHOWN | |
|---|---|---|---|---|---|
| | R | B | | R | B |
| Ale, beer, etc. | 20 | 14 | Sugar, to Vicksburg and Natchez | 10 | 7 |
| Bags, burlap (24,000) | 12 | 8 | Sugar, elsewhere (30,000) | 10 | 8 |
| Bags (any quantity) | 15 | 10 | Sugar (any quantity) | 15 | 10 |
| Barrels, empty (10,000) | 25 | 18 | Lumber, doors, except to Natchez and Vicksburg (24,000) | 11 | 10 |
| Bottles | 25 | 18 | To Vicksburg and Natchez (24,000) | 10 | 9 |
| Brick, fire (30,000) | 10 | 7 | | | |

| | | |
|---|---|---|
| Candles | 20 | 14 |
| Canned goods (30,000) | 15 | 10 |
| Canned goods (any quantity) | 25 | 18 |
| Cement or plaster | 10 | 7 |
| Chalk (24,000), to Memphis only | 8 | 6 |
| Cotton, compressed, from Memphis and Helena to New Orleans | 20 | 15 |
| Cotton fabrics (north bound only, any quantity) | 25 | 18 |
| Cotton-seed meal and hulls (24,000), rates per gross ton | 244 | 160 |
| Cotton ties | 10 | 8 |
| Earthen fruit jars | 17 | 11 |
| Fertilizer (30,000), rates per net ton | 200 | 150 |
| Fertilizer material (30,000), rates per gross ton | 175 | 150 |
| Furniture not otherwise specified (12,000) | 25 | 18 |
| Iron bedsteads (24,000) | 25 | 18 |
| Household goods | 45 | 30 |
| Scrap iron (gross ton) (40,000) | 200 | 179 |
| Scrap iron (any quantity) | 17 | 11 |
| Lard and compounds | 15 | 10 |
| Coffee (30,000) | 17 | 10 |
| Coffee (any quantity) | 20 | 12 |
| Molasses (24,000) | 12 | 8 |
| Molasses (any quantity) | 10 | 10 |
| Molasses to Natchez, per barrel | 55 | 40 |
| Molasses to Natchez, per one-half barrel | 28 | 20 |
| Rice (24,000) | 10 | 7 |
| Rice (any quantity) | 15 | 10 |
| Oil, linseed, per barrel | 60 | 40 |
| Paints, dry earth (30,000) | 17 | 9 |
| Dry or mixed (30,000) | 13 | 9 |
| Dry or mixed (any quantity) | 22 | 15 |
| Mineral (30,000) | 13 | 9 |
| Mineral (any quantity) | 17 | 11 |
| Ochre (30,000) | 13 | 9 |
| Ochre (any quantity) | 17 | 11 |
| White and red lead (30,000) | 13 | 9 |
| White and red lead (any quantity) | 17 | 15 |
| Putty (any quantity) | 13 | 15 |
| Pickles | 22 | 18 |
| Roofing, tar | 22 | 8 |
| Salt (30,000) | 25 | 7 |
| Salt (any quantity) | 15 | 9 |
| Saltpeter | 9 | 8 |
| Slate, roofing (30,000) | 12 | 9 |
| Soap, laundry | 12 | 11 |
| Starch | 12 | 13 |
| Staves (30,000) | 15 | 8 |
| Stoves (24,000) | 17 | 13 |
| Stoves (any quantity) | 17 | 17 |
| Tinware | 30 | 20 |
| Tobacco, plug | 24 | 18 |
| Trunks and valises | 32 | 22 |
| Trunks, empty | 40 | 30 |
| Turpentine, to Memphis (30,000) | 17 | 11 |
| Twine, binder, to Memphis (24,000) | 15 | 10 |
| Vinegar (24,000) | 15 | 10 |
| Wines and liquors | 25 | 18 |
| Woodenware | 20 | 15 |

## TARIFF NO. 4 OF THE MISSISSIPPI VALLEY TRANSPORTATION COMPANY

### EFFECTIVE JUNE 15, 1911

### COMPARED WITH CORRESPONDING RATES PUBLISHED BY THE ILLINOIS CENTRAL RAILROAD

FROM
NEW ORLEANS*
TO
HICKMAN, CAIRO, CAPE GIRARDEAU, EAST ST. LOUIS, AND ST. LOUIS

| | Rates in Cents per Hundred Pounds | | | | | | | | | | | | | | | | | | | | | | | | Rates per Bbl. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Classes | | | | | | | | | | | | | | | | | | | | | | | | Classes | |
| | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | A | | B | | C | | D | | E | | H | | F | |
| | R | B | R | B | R | B | R | B | R | B | R | B | R | B | R | B | R | B | R | B | R | B | R | B | R | B |
| † | 75 | 45 | 63 | 40 | 55 | 35 | 42 | 25 | 33 | 20 | 29 | 16 | 21 | 13 | 20 | 11 | 20 | 11 | 18 | 10 | 23 | 13 | 47 | 28 | 35 | 20 |
| ‡ | | 50 | | 45 | | 40 | | 30 | | 22 | | 18 | | 15 | | 12 | | 12 | | 11 | | 15 | | 32 | | 22 |
| § | 90 | 60 | 75 | 50 | 65 | 45 | 50 | 40 | 40 | 30 | 35 | 22 | 25 | 18 | 25 | 18 | 25 | 18 | 23 | 15 | 28 | 18 | 57 | 41 | 45 | 30 |

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* Donaldsonville, Plaquemine, Baton Rouge, Natchez, Vicksburg, Greenville, and Helena take same rates as New Orleans.

† To Hickman.

‡ To Cairo.

§ To Cape Girardeau, St. Louis, and East St. Louis.

| COMMODITIES AND CARLOAD WEIGHTS IN POUNDS OR TONS | COMMODITY RATES IN CENTS PER HUNDRED POUNDS EXCEPT AS OTHERWISE SHOWN | | | | | |
|---|---|---|---|---|---|---|
| | To Cairo | | To St. Louis ‖ | | To Hickman | |
| | R | B | R | B | R | B |
| Alcohol (30,000) | 20 | 14 | 23 | 16 | 20 | 13 |
| Axle grease (25,000) | 29 | 16 | 35 | 20 | 29 | 14 |
| Axle grease (any quantity) | 33 | 18 | 40 | 22 | 33 | 16 |
| Asphalt (40,000) | 16 | 10 | 18 | 12 | 16 | 10 |
| Bags, burlap (24,000) | 14 | 11 | 15 | 12 | 14 | 10 |
| Bags, burlap (any quantity) | 22 | 15 | 25 | 18 | 22 | 14 |
| Bags, empty cement (24,000) | 30 | 20 | 34 | 23 | 30 | 18 |
| Beans, dried | 23 | 18 | 26 | 20 | 23 | 16 |
| Bone black (30,000) | 29 | 9 | 35 | 11 | 29 | 8 |
| Broom handles (30,000) | 22 | 15 | 25 | 18 | 22 | 14 |
| Canned goods (30,000) | 24 | 17 | 27 | 19 | 24 | 16 |
| Canned goods (any quantity) | 35 | 25 | 40 | 30 | 35 | 23 |
| Carbon clinkers (30,000) | 13 | 8 | 15 | 10 | 13 | 8 |
| Cement, portland or natural (40,000) | 15 | 10 | 17 | 11 | 15 | 9 |
| Coffee (30,000) | 23 | 17 | 23 | 18 | 23 | 16 |
| Coffee (any quantity) | 30 | 19 | 30 | 20 | 30 | 18 |
| Cotton, uncompressed | 38 | 25 | 40 | 25 | 38 | 25 |
| Cotton, compressed | 28 | 20 | 30 | 20 | 28 | 20 |
| Cotton piece goods | 33 | 24 | 40 | 30 | 33 | 22 |
| Cotton-seed products | 17 | 11 | 19 | 14 | 17 | 10 |
| Dry goods | 61 | 45 | 70 | 50 | 61 | 42 |
| Excelsior (20,000) | 15 | 10 | 17 | 11 | 15 | 9 |
| Feed (30,000) | 15 | 10 | 17 | 11 | 15 | 9 |
| Fibers, in bales | 23 | 17 | 23 | 17 | 23 | 15 |
| Moss, pressed in bales | 26 | 19 | 26 | 19 | 26 | 17 |
| Ozacatan (15,000) | 18 | 21 | 32 | 21 | 18 | 20 |
| Fertilizer (30,000), rates per net ton | 265 | 185 | 305 | 220 | 265 | 165 |
| Forest products (34,000) | 14 | 9 | 18 | 12 | 14 | 8 |
| Mahogany logs (30,000) | 21 | 15 | 23 | 17 | 21 | 13 |
| Mahogany logs (any quantity) | 42 | 32 | 50 | 38 | 42 | 30 |

‖ Cape Girardeau and East St. Louis take the same rates.

| COMMODITIES AND CARLOAD WEIGHTS IN POUNDS OR TONS | COMMODITY RATES IN CENTS PER HUNDRED POUNDS EXCEPT AS OTHERWISE SHOWN | | | | | |
|---|---|---|---|---|---|---|
| | To Cairo | | To St. Louis \|\| | | To Hickman | |
| | R | B | R | B | R | B |
| Fruits (24,000) | 35 | 20 | 40 | 24 | 35 | 18 |
| Fruits (any quantity) | 44 | 34 | 50 | 40 | 44 | 30 |
| Grease (30,000) | 17 | 9 | 19 | 10 | 17 | 8 |
| Hides, dry (24,000) | 32 | 21 | 37 | 26 | 32 | 20 |
| Hides, green | 20 | 14 | 23 | 17 | 20 | 13 |
| Knitting-factory products | 33 | 24 | 40 | 30 | 33 | 22 |
| Lead dross (24,000) | 16 | 10 | 18 | 12 | 16 | 10 |
| Matting (24,000) | 26 | 19 | 50 | 20 | 26 | 17 |
| Mineral water (24,000) | 24 | 18 | 28 | 20 | 24 | 16 |
| Mineral water (any quantity) | 35 | 25 | 40 | 30 | 35 | 22 |
| Nuts, edible (24,000) | 31 | 20 | 35 | 25 | 31 | 18 |
| Naval stores (30,000) | 15 | 10 | 17 | 11 | 15 | 9 |
| Turpentine (30,000) | 22 | 15 | 28 | 20 | 22 | 13 |
| Oils, petroleum (24,000) | 18 | 10 | 18 | 10 | 18 | 9 |
| Oils, rosin or pine (24,000) | 22 | 19 | 28 | 20 | 22 | 17 |
| Oil, tar (24,000) | 26 | 19 | 30 | 20 | 26 | 17 |
| Paints, dry and white lead, | 20 | 14 | 23 | 17 | 20 | 12 |
| Paints, dry and white lead (any quantity) | 28 | 20 | 32 | 23 | 28 | 18 |
| Paper stock (30,000) | 16 | 10 | 18 | 10 | 16 | 9 |
| Paper stock (any quantity) | 21 | 18 | 25 | 18 | 21 | 16 |
| Rice, clean (30,000) | 22 | 15 | 24 | 17 | 22 | 14 |
| Rice, clean (any quantity) | 26 | 19 | 28 | 20 | 26 | 17 |
| Rice, brewers (30,000) | 17 | 10 | 20 | 10 | 18 | 9 |
| Rice, bran | 13 | 9 | 17 | 10 | 13 | 8 |
| Rice, chaff (any quantity) | 17 | 10 | 22 | 14 | 17 | 9 |
| Salt (30,000) | 15 | 10 | 15 | 10 | 15 | 9 |
| Salvage goods (24,000) | 38 | 30 | 43 | 35 | 38 | 27 |
| Soap, laundry (30,000) | 19 | 13 | 22 | 15 | 19 | 12 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Soap (any quantity) | 22 | 15 | 25 | 18 | 22 | 13 |
| Soap, unfinished | 17 | 11 | 19 | 13 | 17 | 10 |
| Soda ash | 14 | 9 | 16 | 10 | 14 | 9 |
| Sugar (33,000) | 17 | 12 | 17 | 12 | 17 | 11 |
| Sugar (any quantity) | 22 | 18 | 24 | 18 | 22 | 16 |
| Sweepings, rice | .. | 9 | 17 | 10 | .. | 8 |
| Tallow (30,000) | 19 | 13 | 22 | 15 | 19 | 11 |
| Tallow (any quantity) | 20 | 14 | 25 | 18 | 20 | 12 |
| Tin scrap (30,000), rates per net ton | 580 | 200 | 282 | 200 | 580 | 180 |
| Tobacco, unmanufactured | 28 | 20 | 32 | 22 | 28 | 18 |
| Twine, binder (24,000) | 16 | 10 | 18 | 12 | 16 | 10 |
| Whisky (24,000) | 29 | 20 | 33 | 22 | 29 | 18 |
| Whisky (any quantity) | 43 | 33 | 49 | 40 | 43 | 30 |
| Wines and liquors (24,000) | 41 | 31 | 47 | 37 | 41 | 28 |
| Wines and liquors (any quantity) | 61 | 45 | 70 | 50 | 61 | 40 |

|| Cape Girardeau and East St. Louis take the same rates.

## TARIFF NO. 5 OF THE MISSISSIPPI VALLEY TRANSPORTATION COMPANY

EFFECTIVE JUNE 15, 1911

COMPARED WITH CORRESPONDING RATES PUBLISHED BY THE ILLINOIS CENTRAL RAILROAD

FROM

St. Louis, East St. Louis, Cape Girardeau, and Cairo

TO

Hickman

| | Rates in Cents per Hundred Pounds | | | | | | | | | | | | | | | | | | | | | | | | Rates per Bbl. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Classes | | | | | | | | | | | | | | | | | | | | | | | | Classes | |
| | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | A | | B | | C | | D | | E | | H | | F | |
| | R | B | R | B | R | B | R | B | R | B | R | B | R | B | R | B | R | B | R | B | R | B | R | B | R | B |
| * | 40 | 30 | 35 | 27 | 30 | 23 | 25 | 18 | 20 | 15 | 18 | 13 | 12 | 8 | 26 | 19 | 15 | 10 | 12 | 8 | 18 | 13 | 42 | 35 | 30 | 20 |
| † | 25 | 20 | 23 | 18 | 20 | 15 | 17 | 13 | 13 | 9 | 12 | 8 | 8 | 5 | 20 | 16 | 10 | 7 | 7 | 5 | 13 | 9 | 32 | 26 | 20 | 12 |

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* From St. Louis, East St. Louis, and Cape Girardeau.

† From Cairo.

| Commodities and Carload Weights in Pounds | Commodity Rates in Cents per Hundred Pounds Except as Otherwise Shown | | | |
|---|---|---|---|---|
| | From St. Louis ‡ | | From Cairo | |
| | R | B | R | B |
| Cement and clay (30,000) | 12 | 6 | 7 | 5 |
| Tile (30,000) | 12 | 7 | 7 | 5 |
| Hardware | 35 | 22 | 23 | 15 |
| Lumber, dressed (24,000) | 16 | 12 | 11 | 7 |
| Lumber, rough (24,000) | 15 | 11 | 10 | 6 |
| Oil, cotton-seed (24,000) | 12 | 8 | 7 | 5 |
| Packing-house products (24,000) | 21 | 15 | 15 | 10 |
| Packing-house products (any quantity) | 26 | 20 | 20 | 15 |
| Salt (30,000) | 13 | 9 | 8 | 5 |

‡ East St. Louis and Cape Girardeau take the same rates as St. Louis.